

FIG. 1A

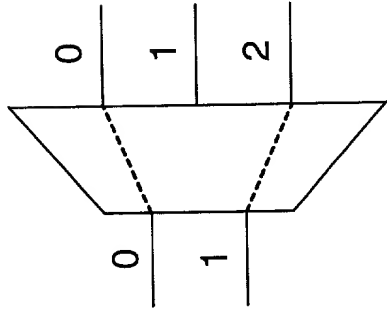


FIG. 1B

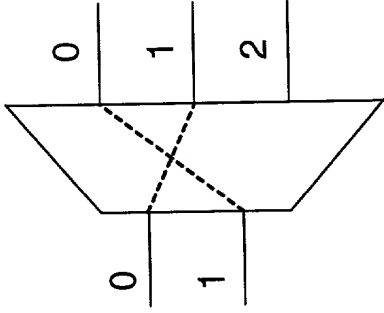


FIG. 1C

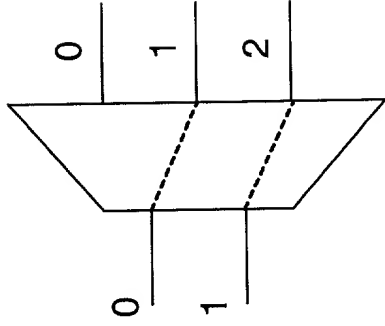


FIG. 1D

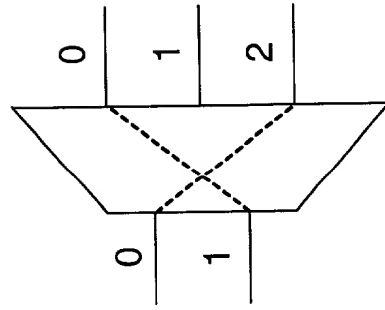


FIG. 1E

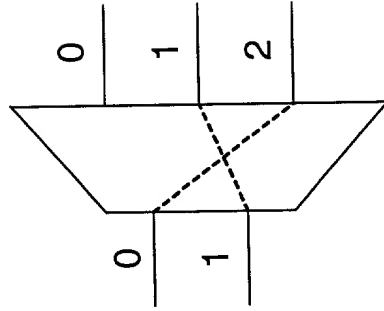


FIG. 1F

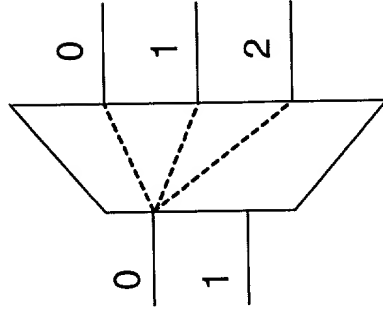


FIG. 1G

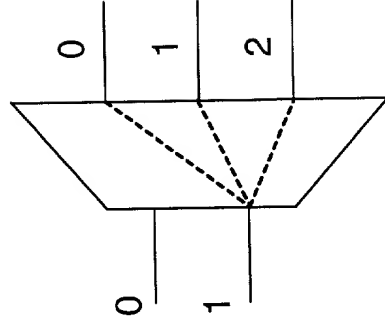


FIG. 1H

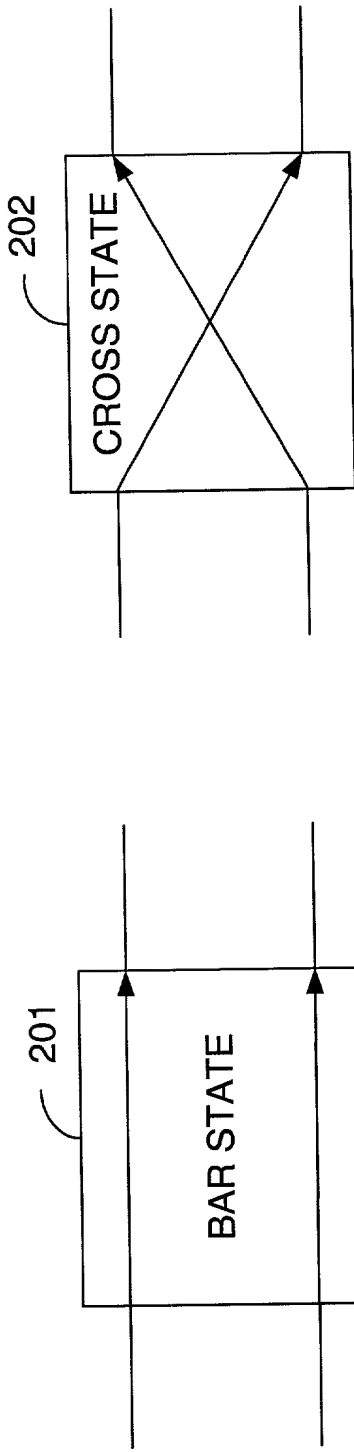


FIG. 2A

FIG. 2B

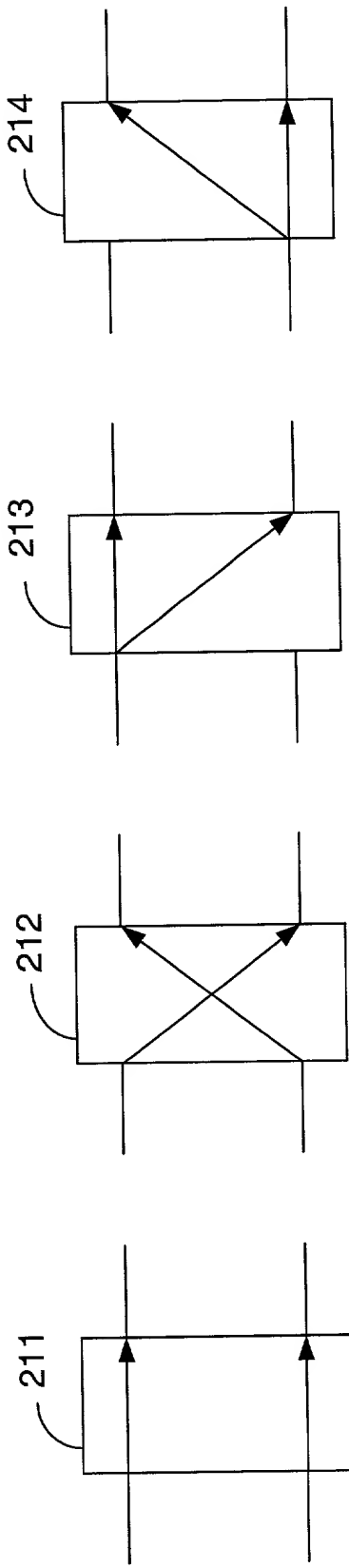


FIG. 2C

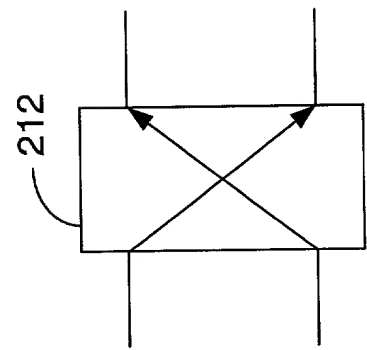


FIG. 2D

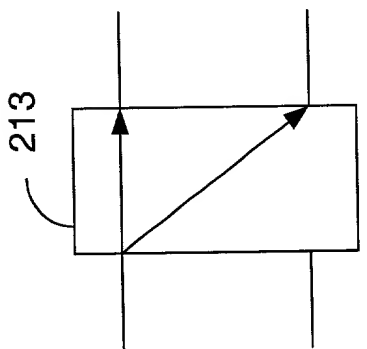


FIG. 2E

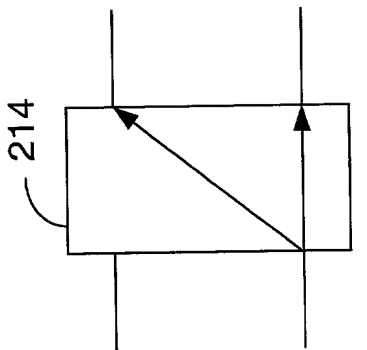


FIG. 2F

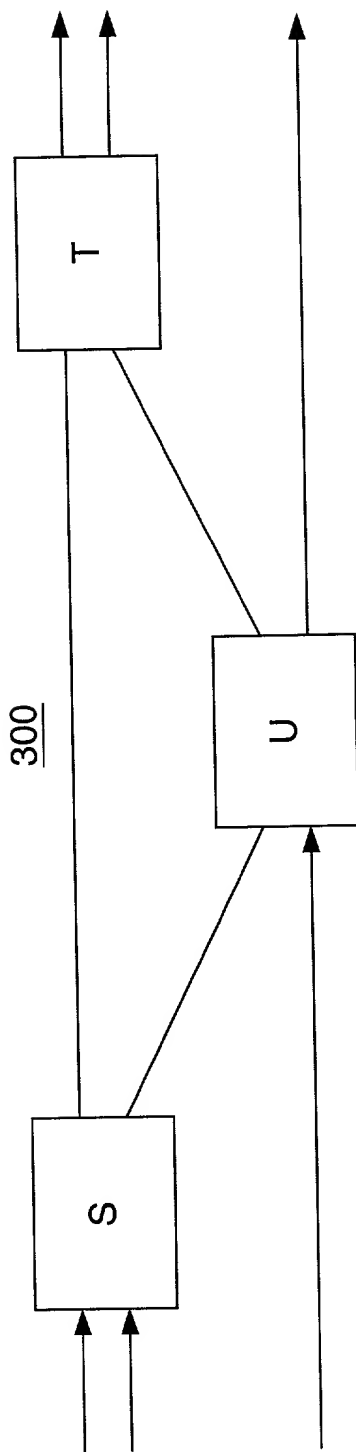


FIG. 3A

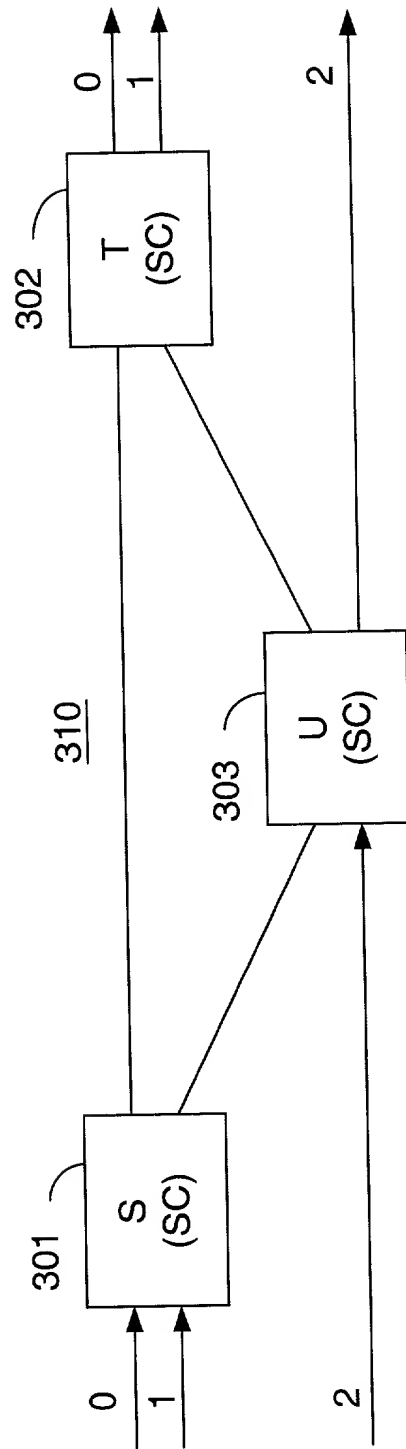


FIG. 3B

400

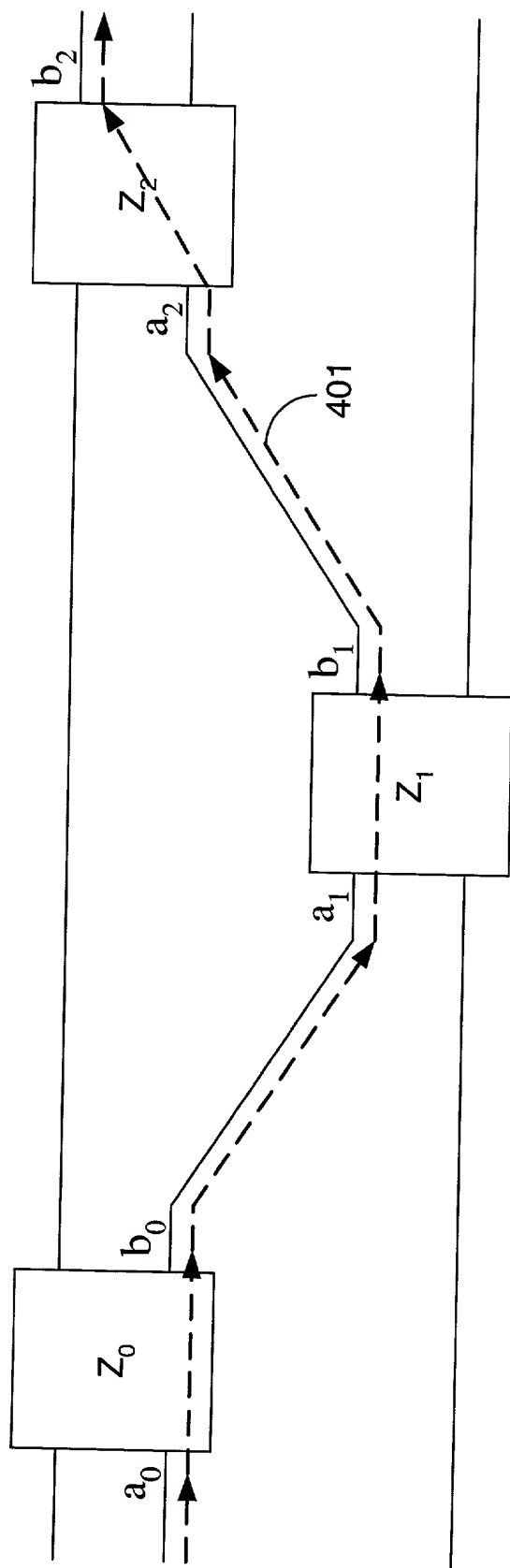


FIG. 4

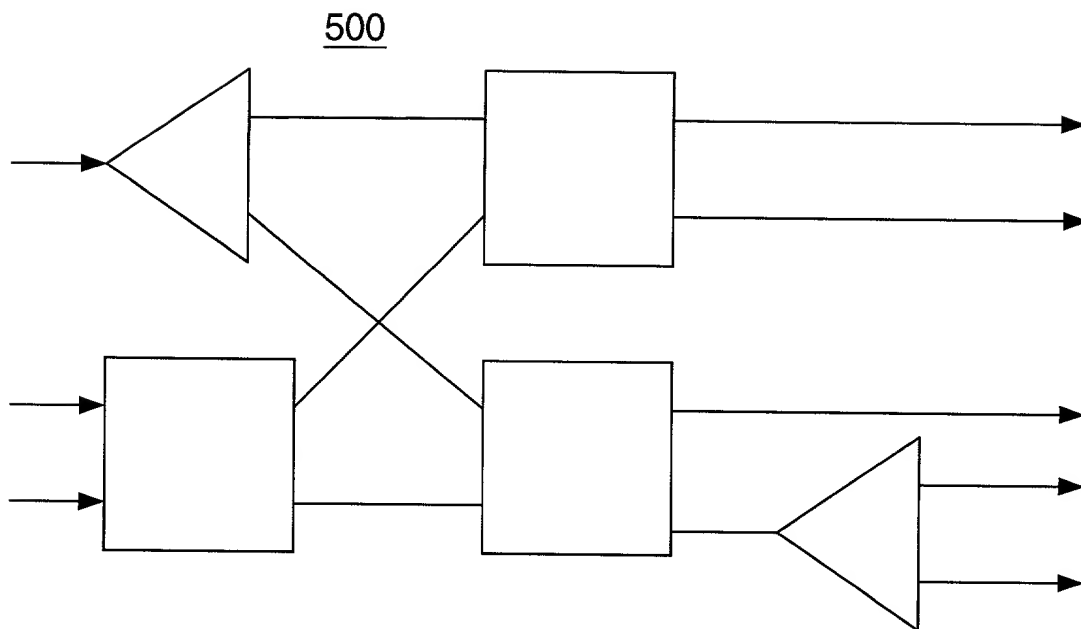


FIG. 5A

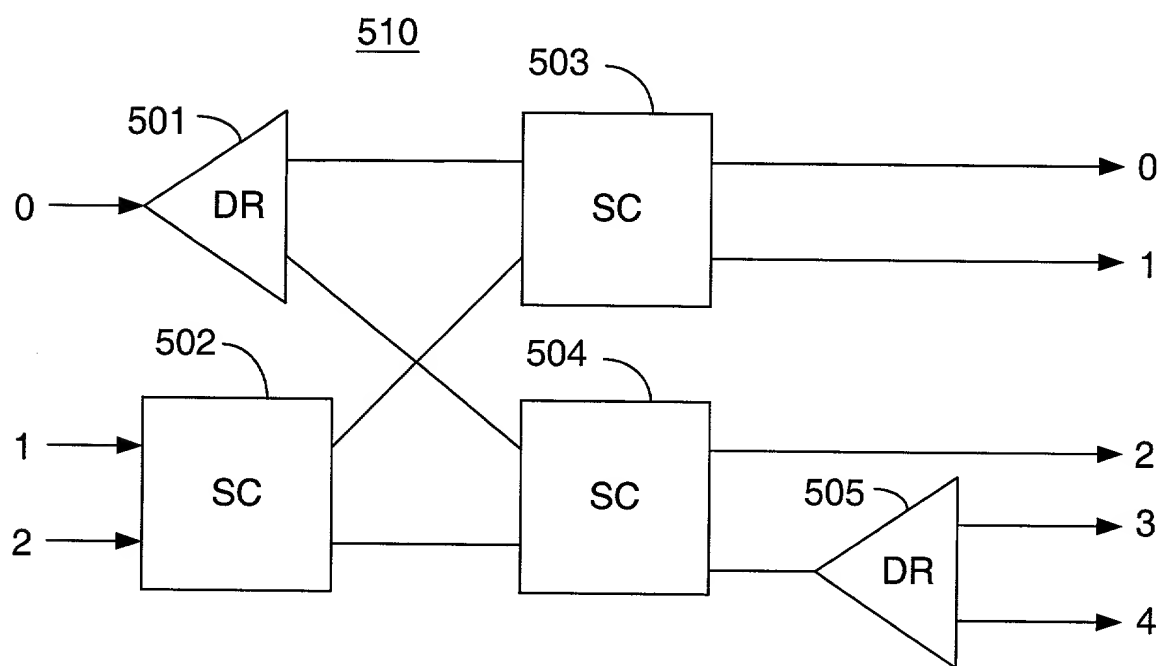


FIG. 5B

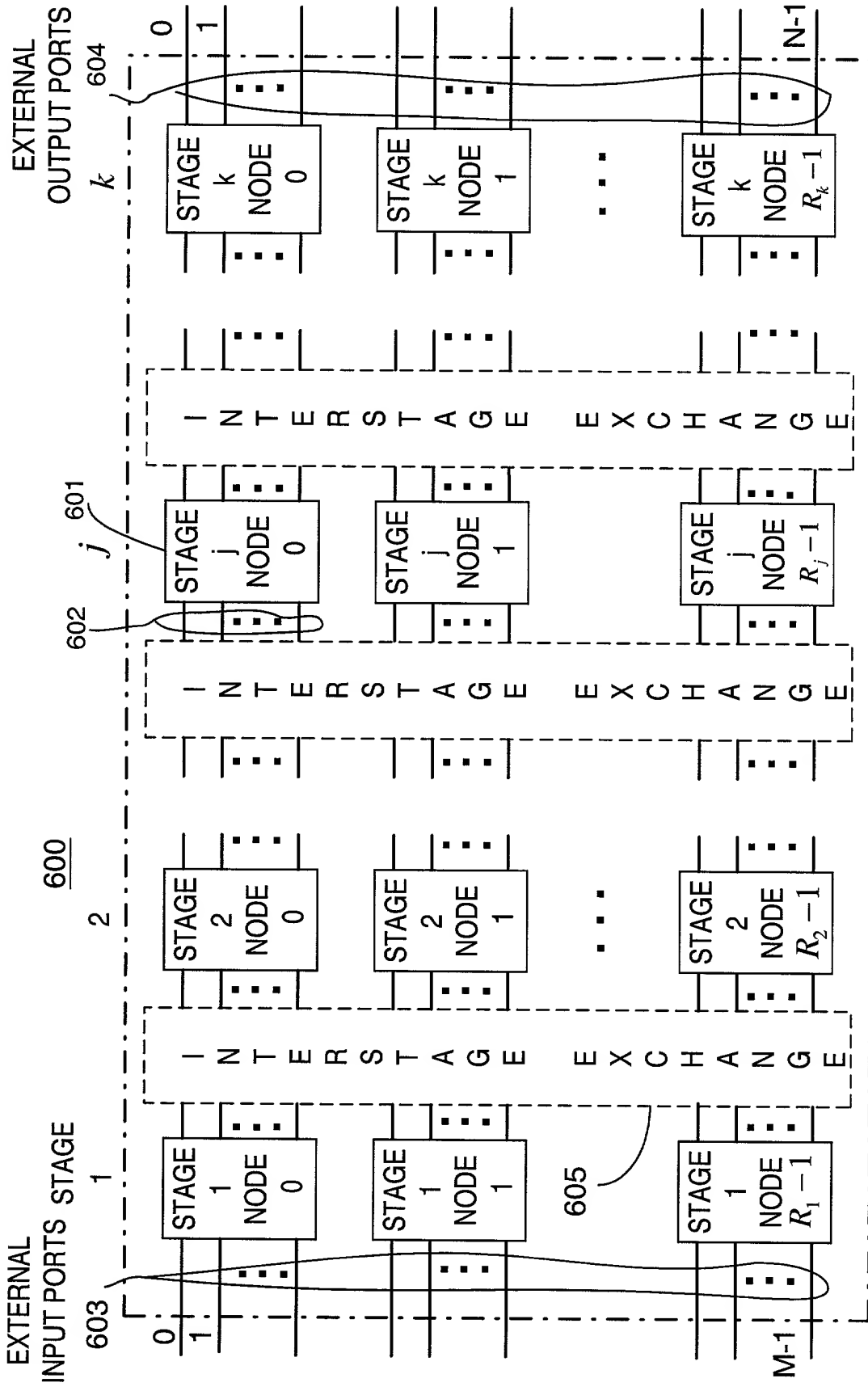


FIG. 6A

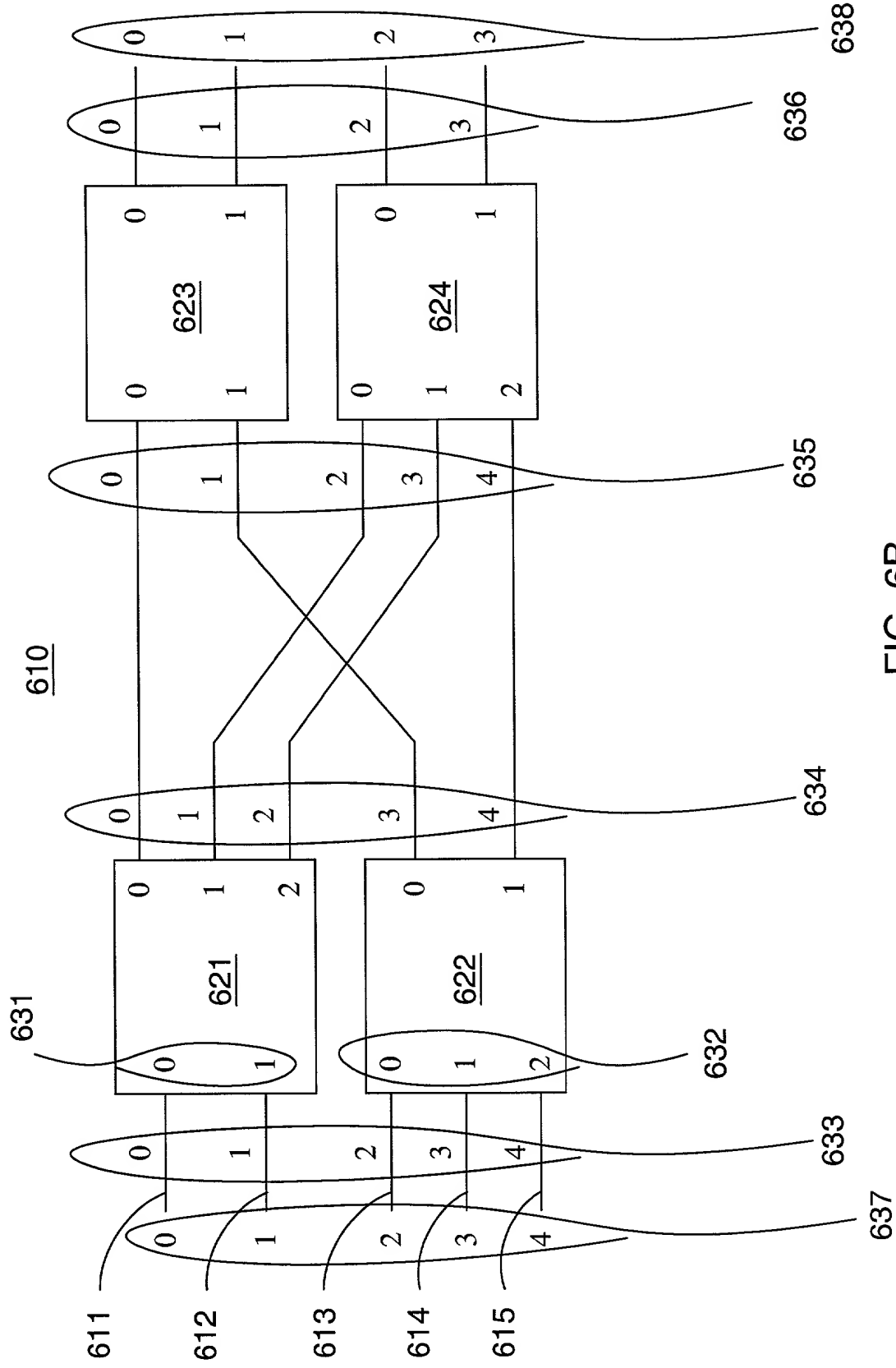


FIG. 6B

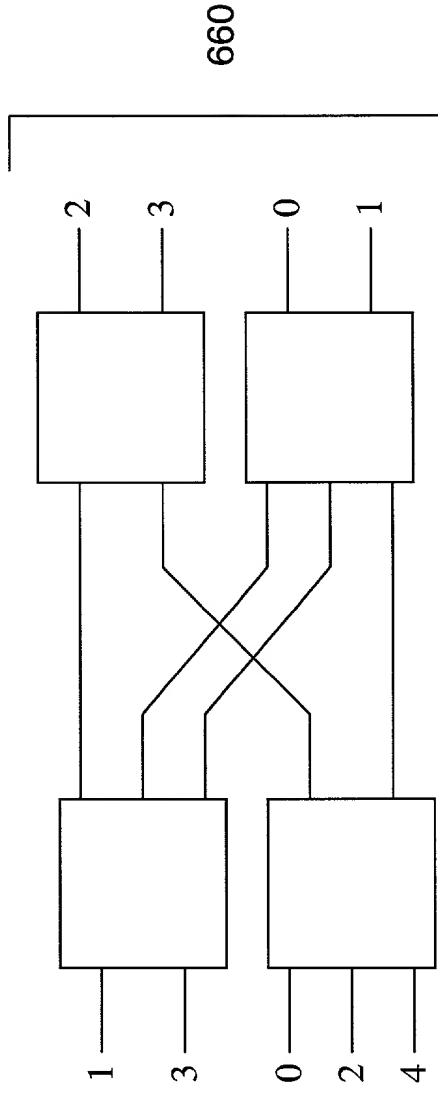


FIG. 6C

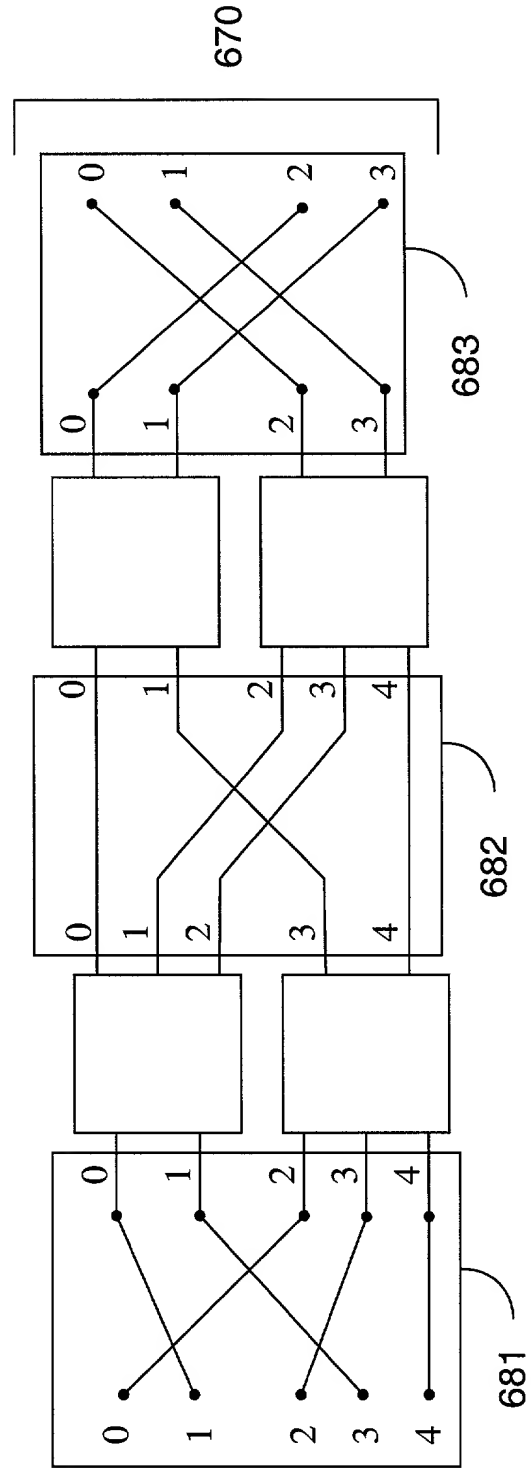


FIG. 6D

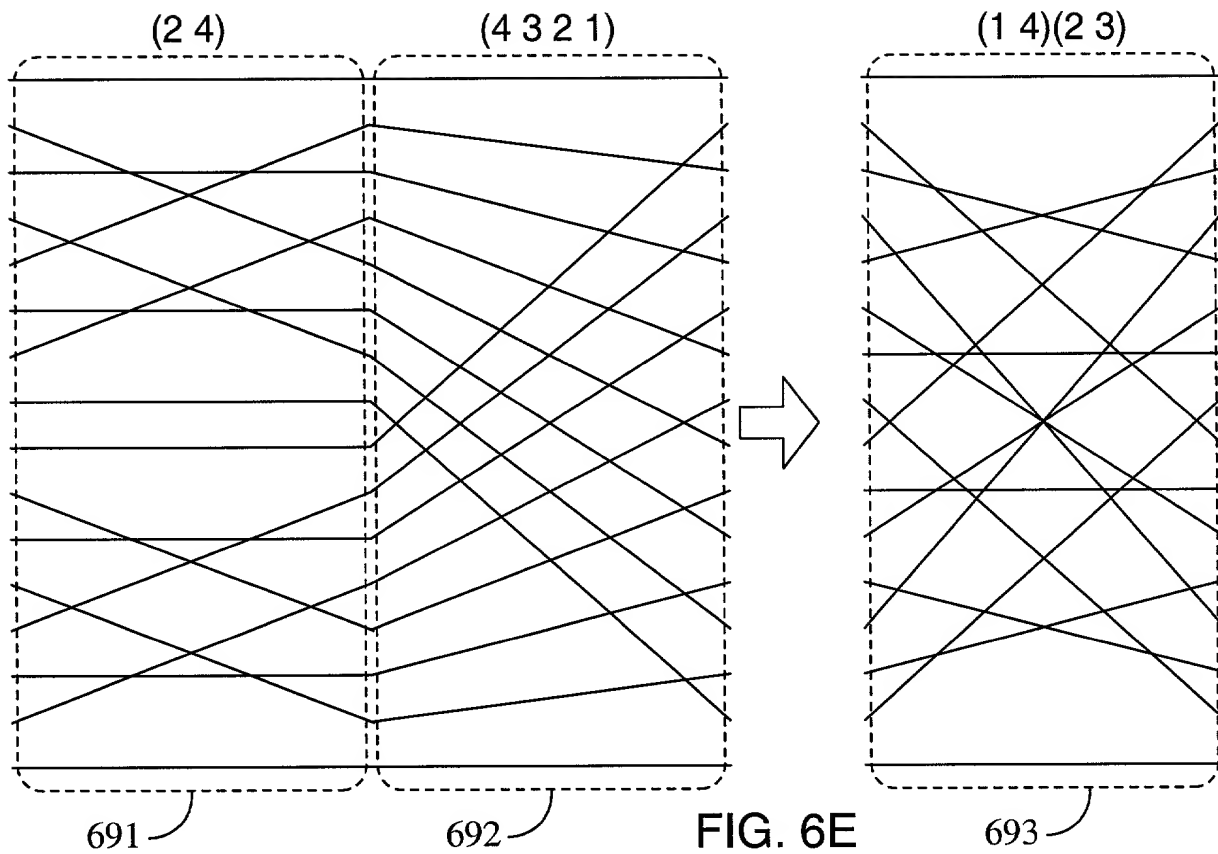


FIG. 6E

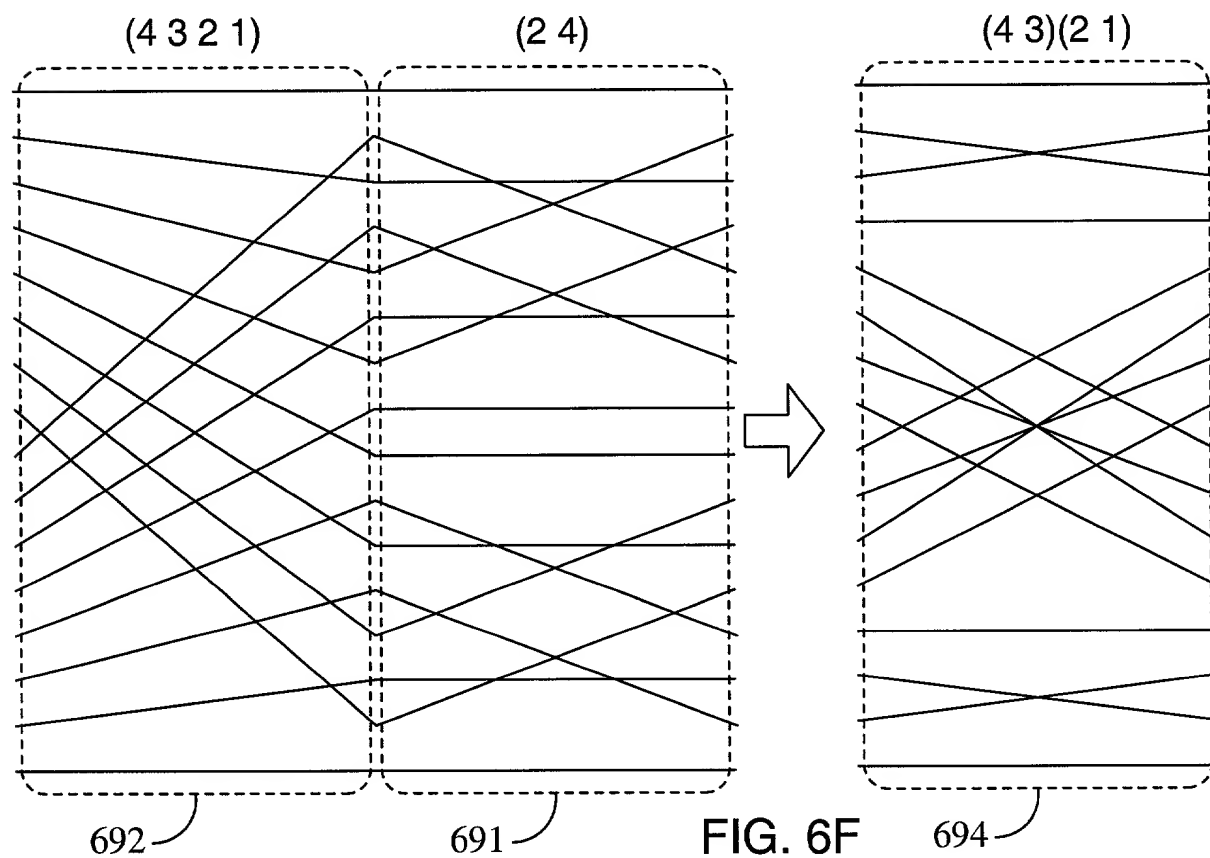


FIG. 6F

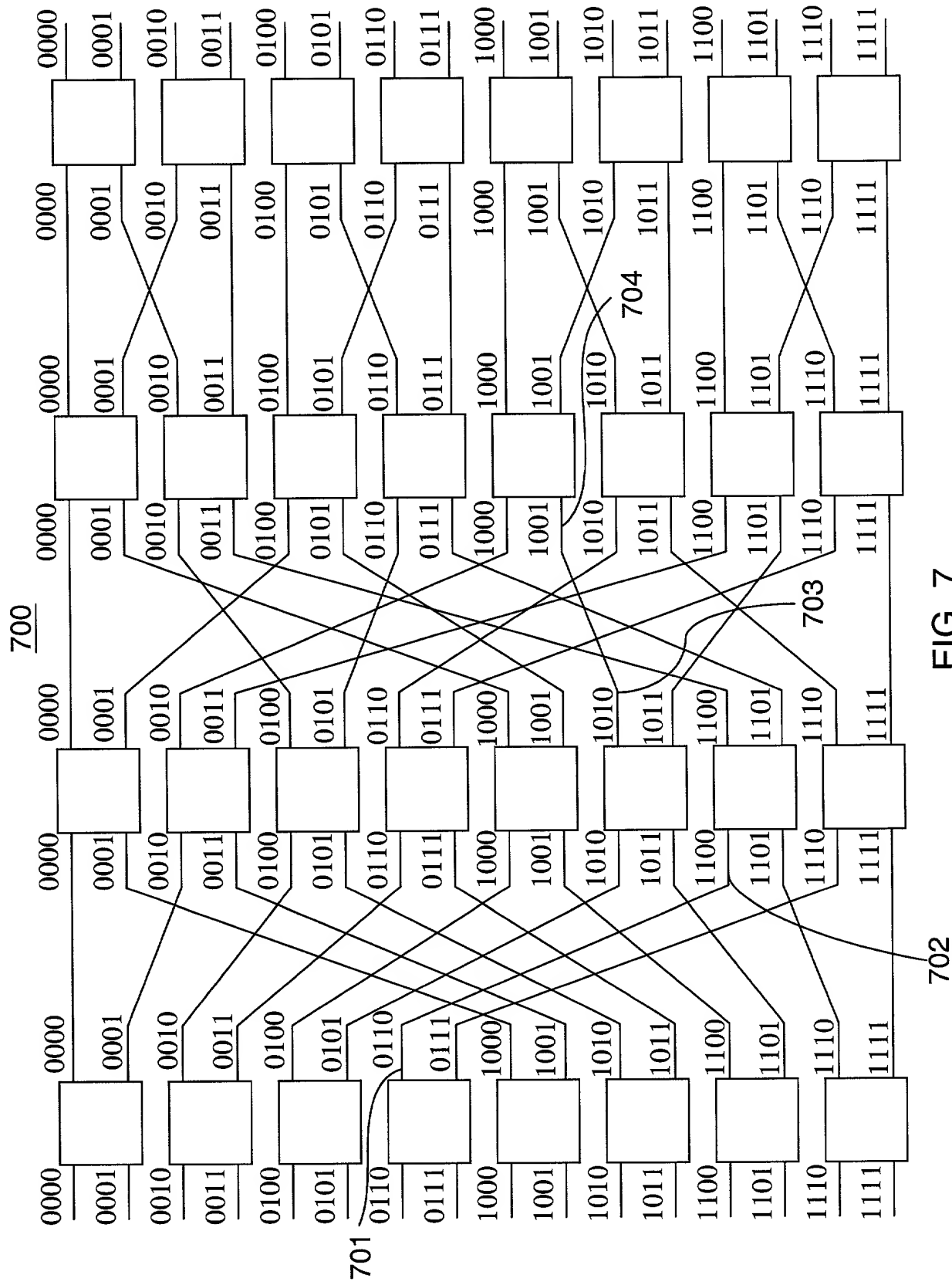


FIG. 7

800

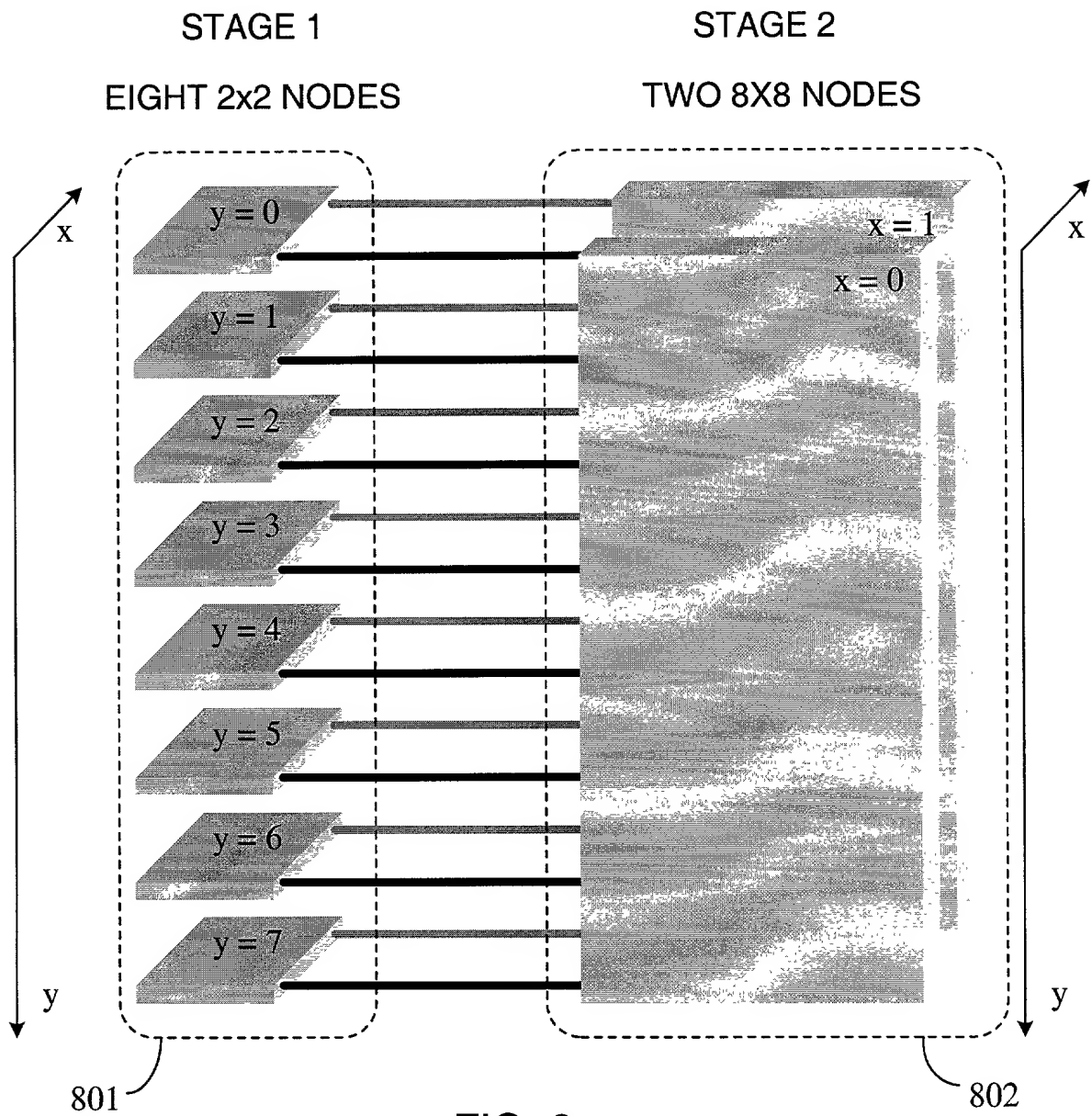


FIG. 8

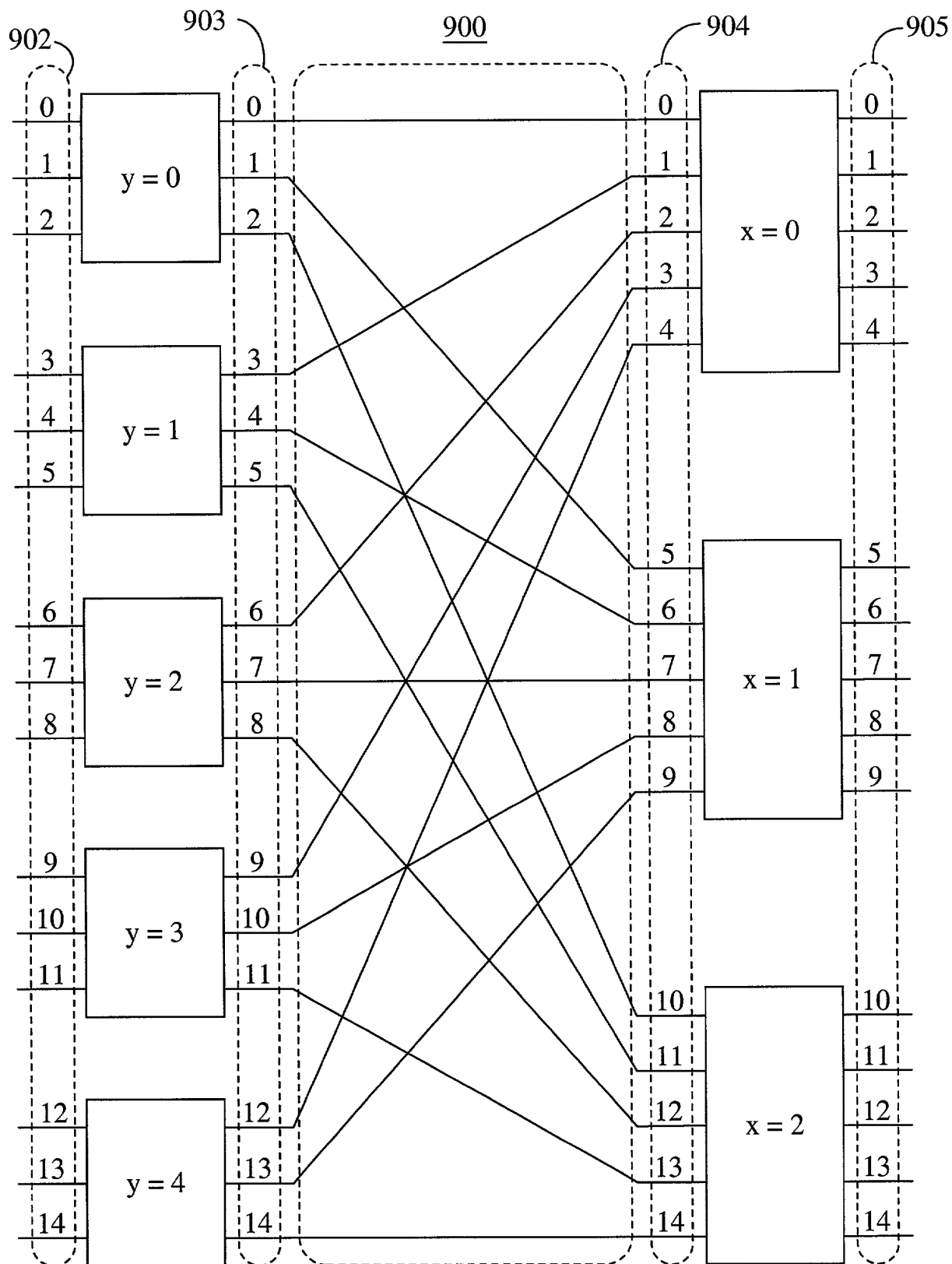


FIG. 9

901

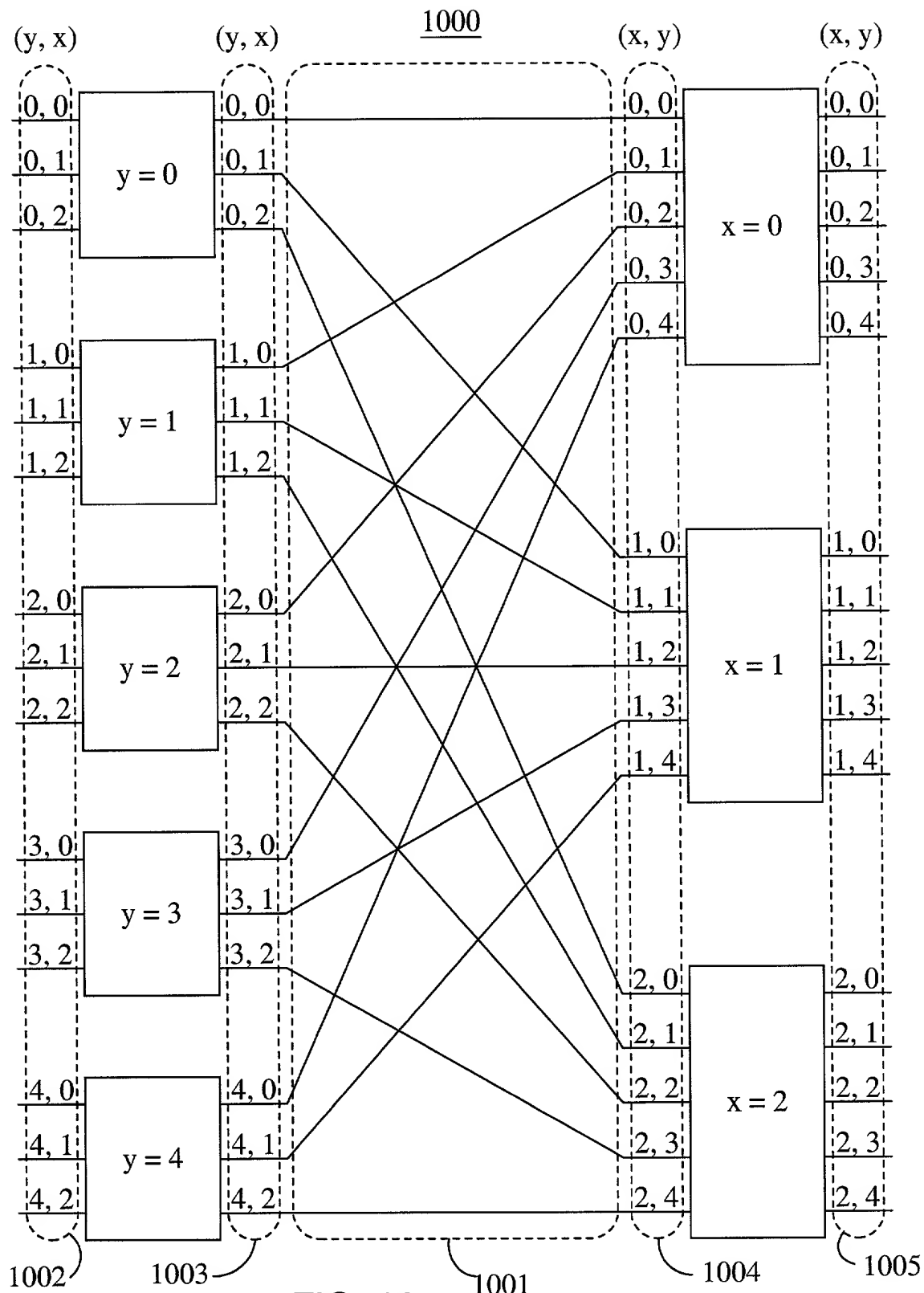
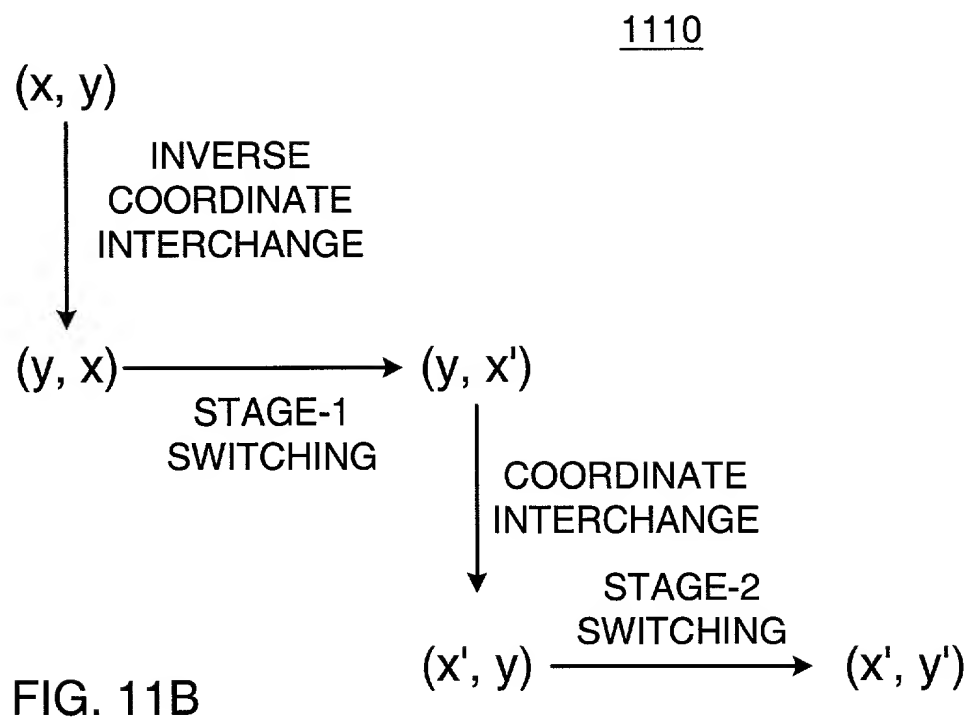
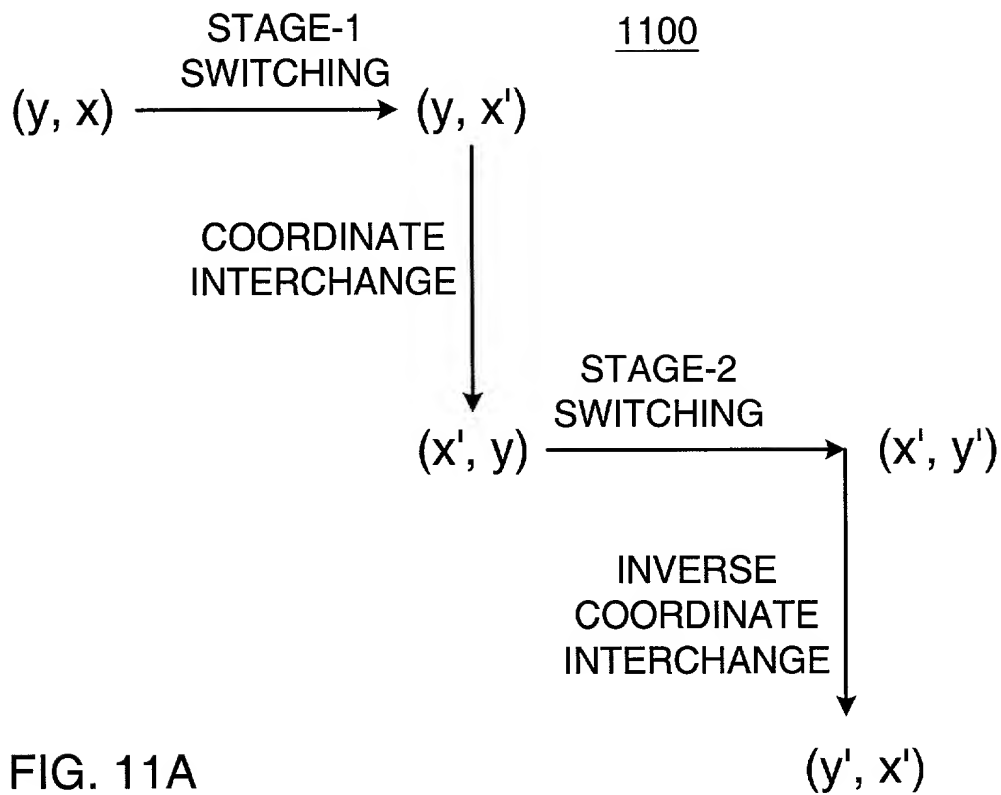


FIG. 10



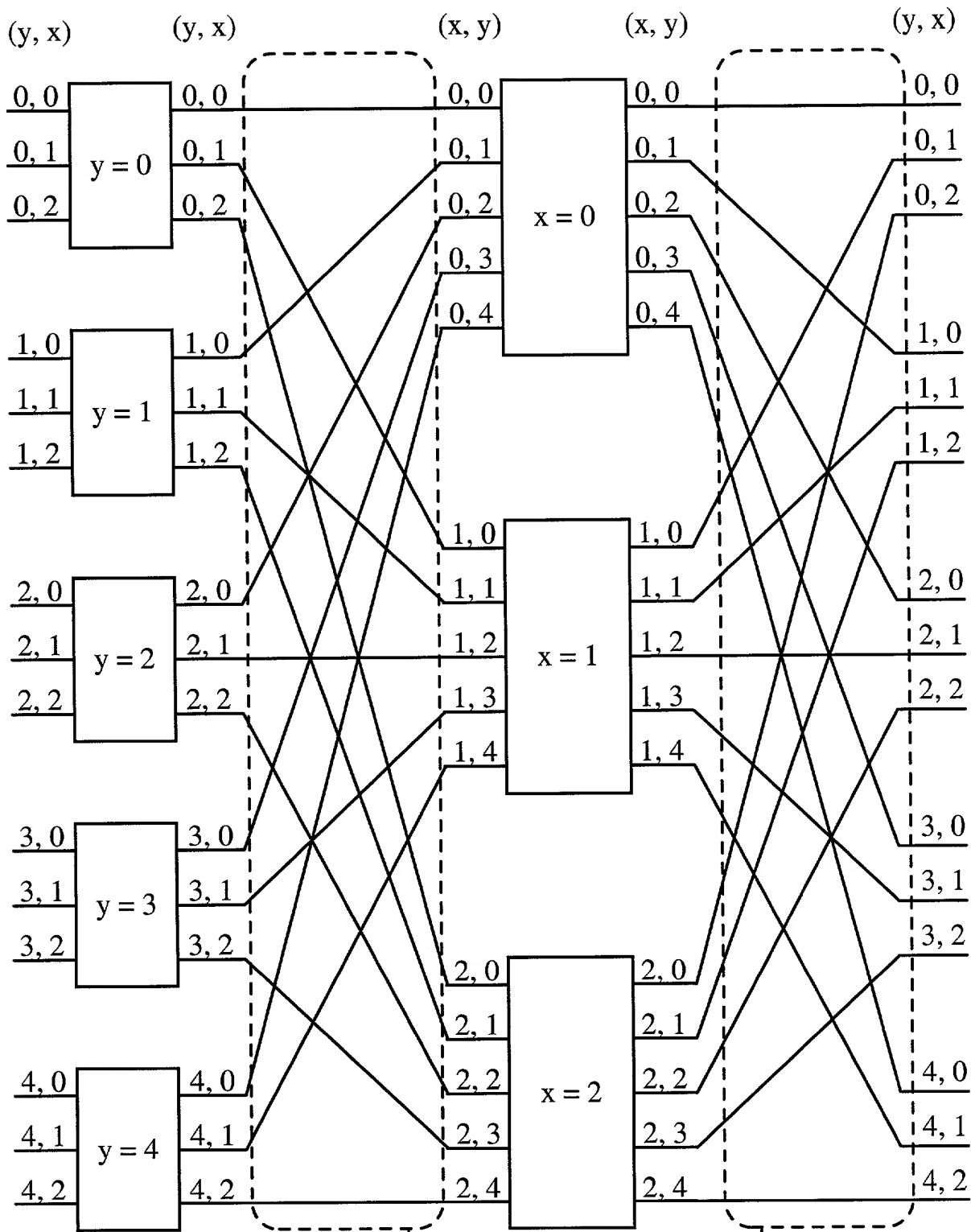


FIG. 12

1201

1202

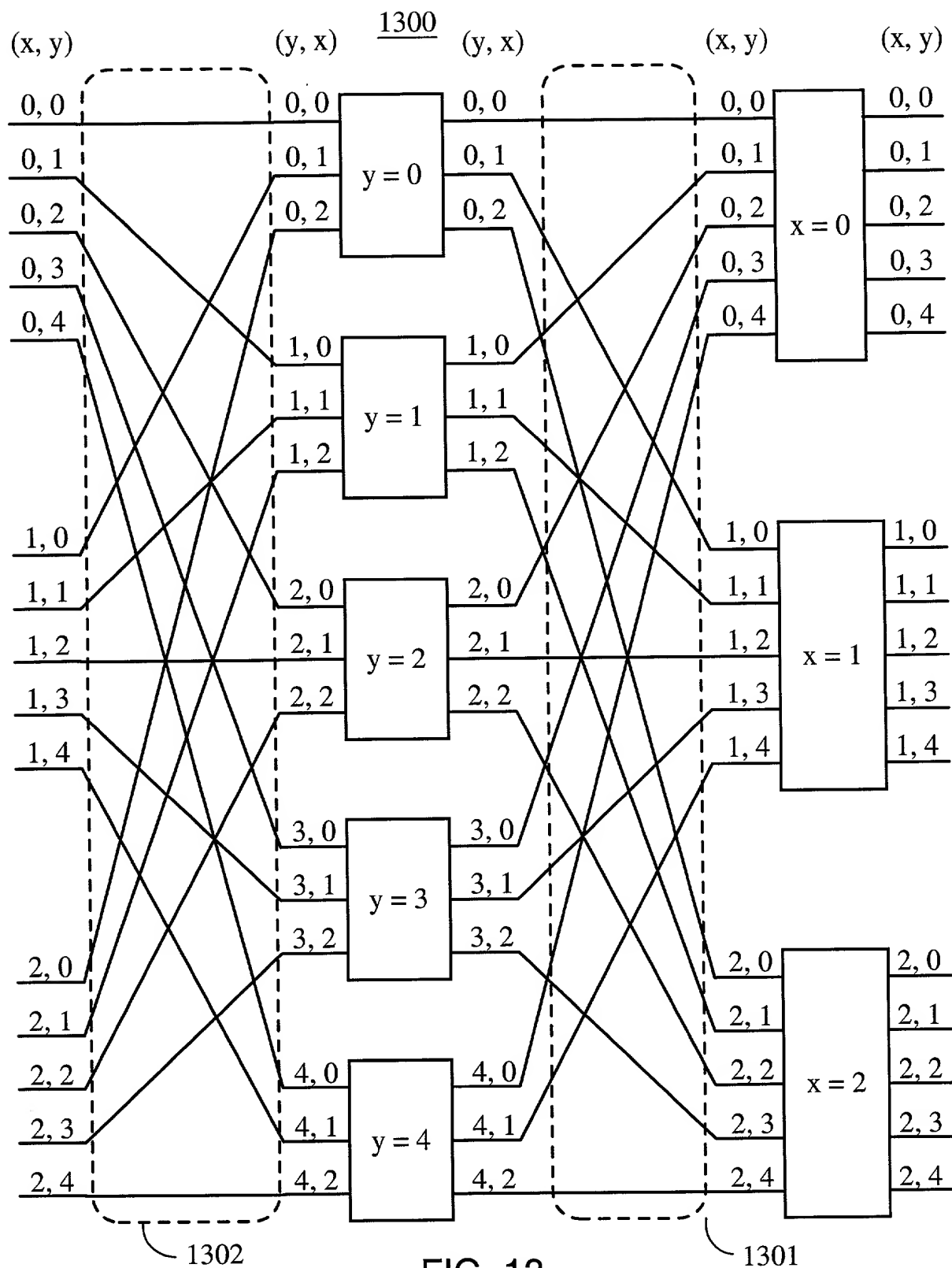
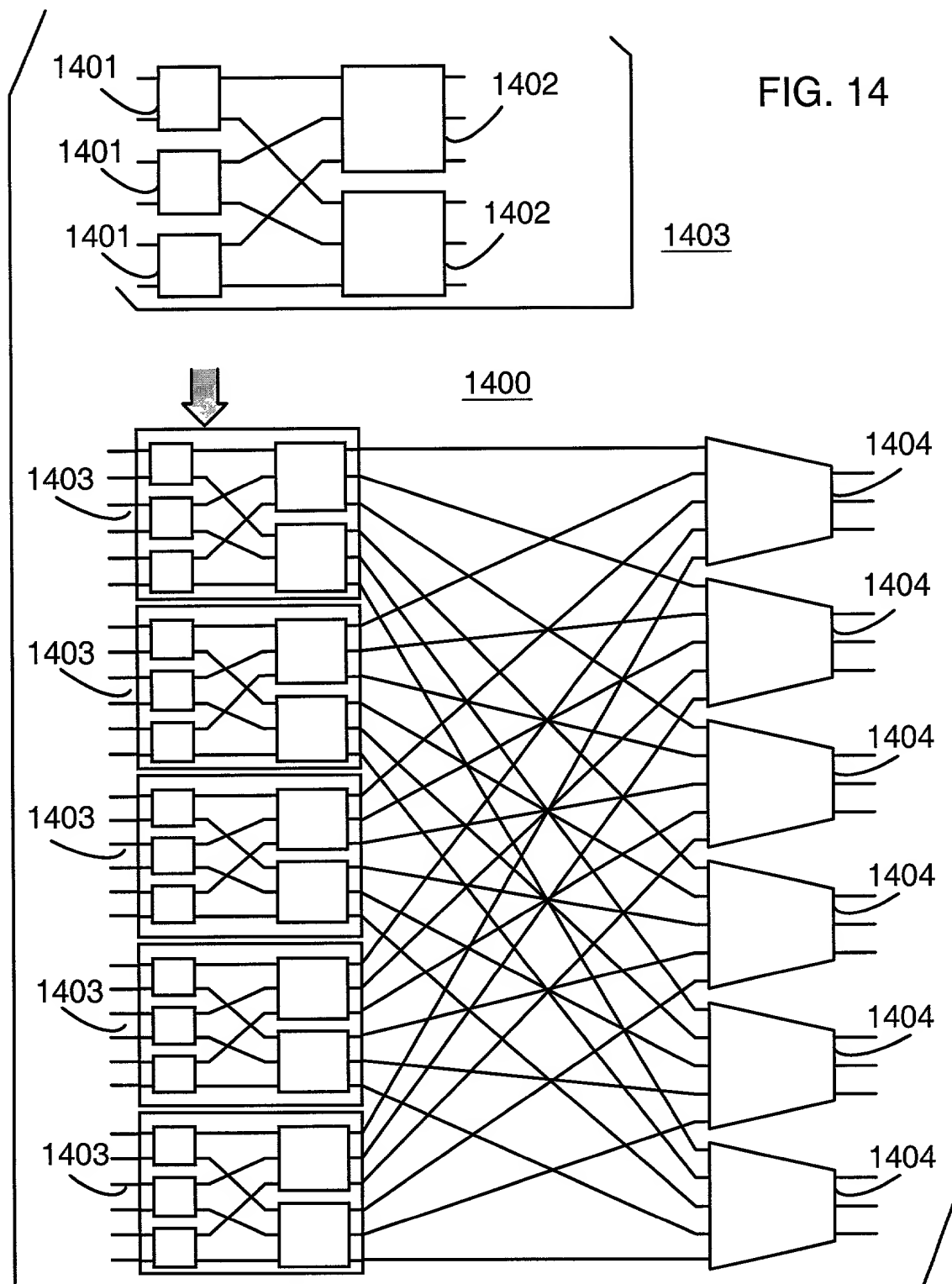


FIG. 13



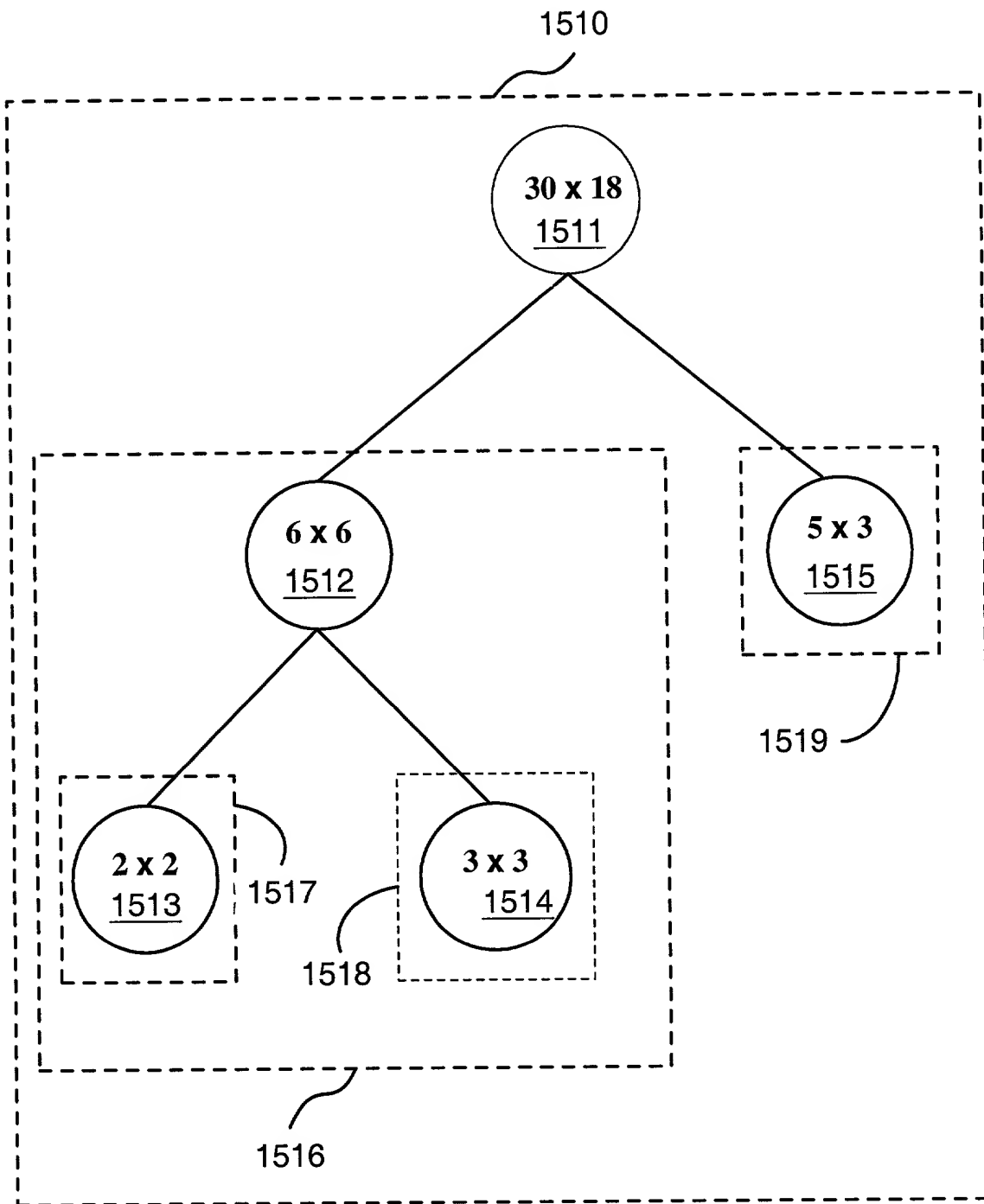
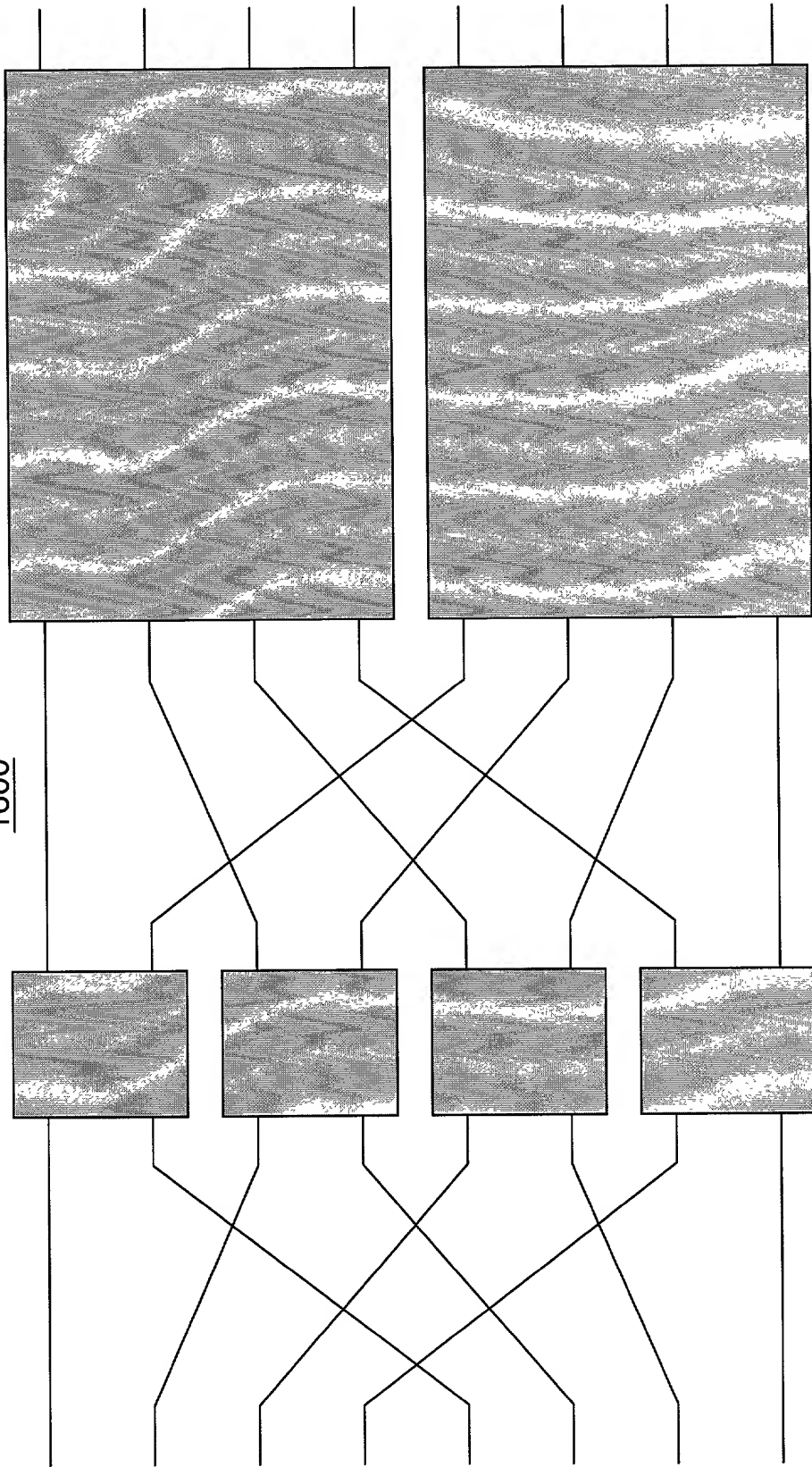


FIG. 15

1600



1602

1601

FIG. 16

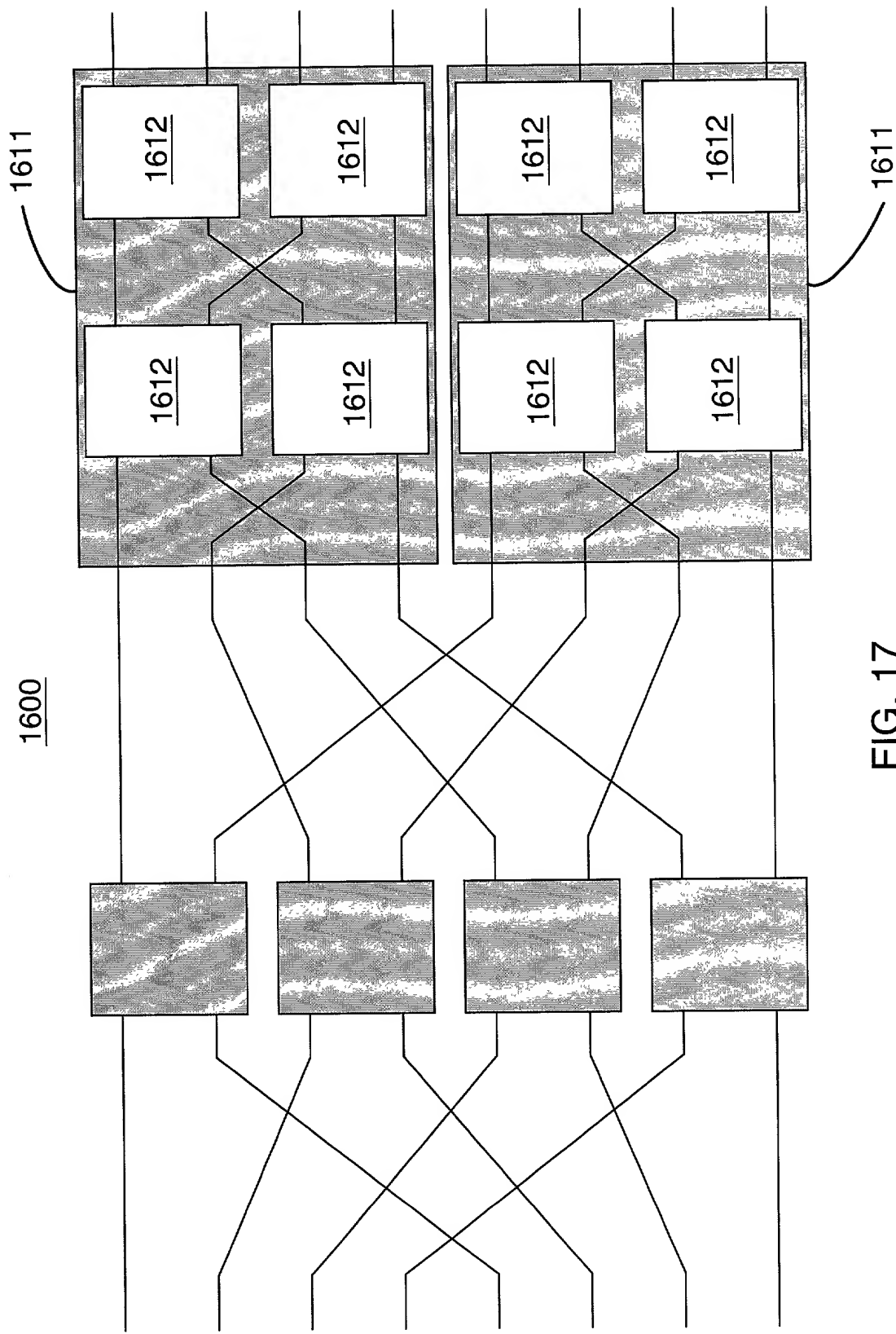


FIG. 17

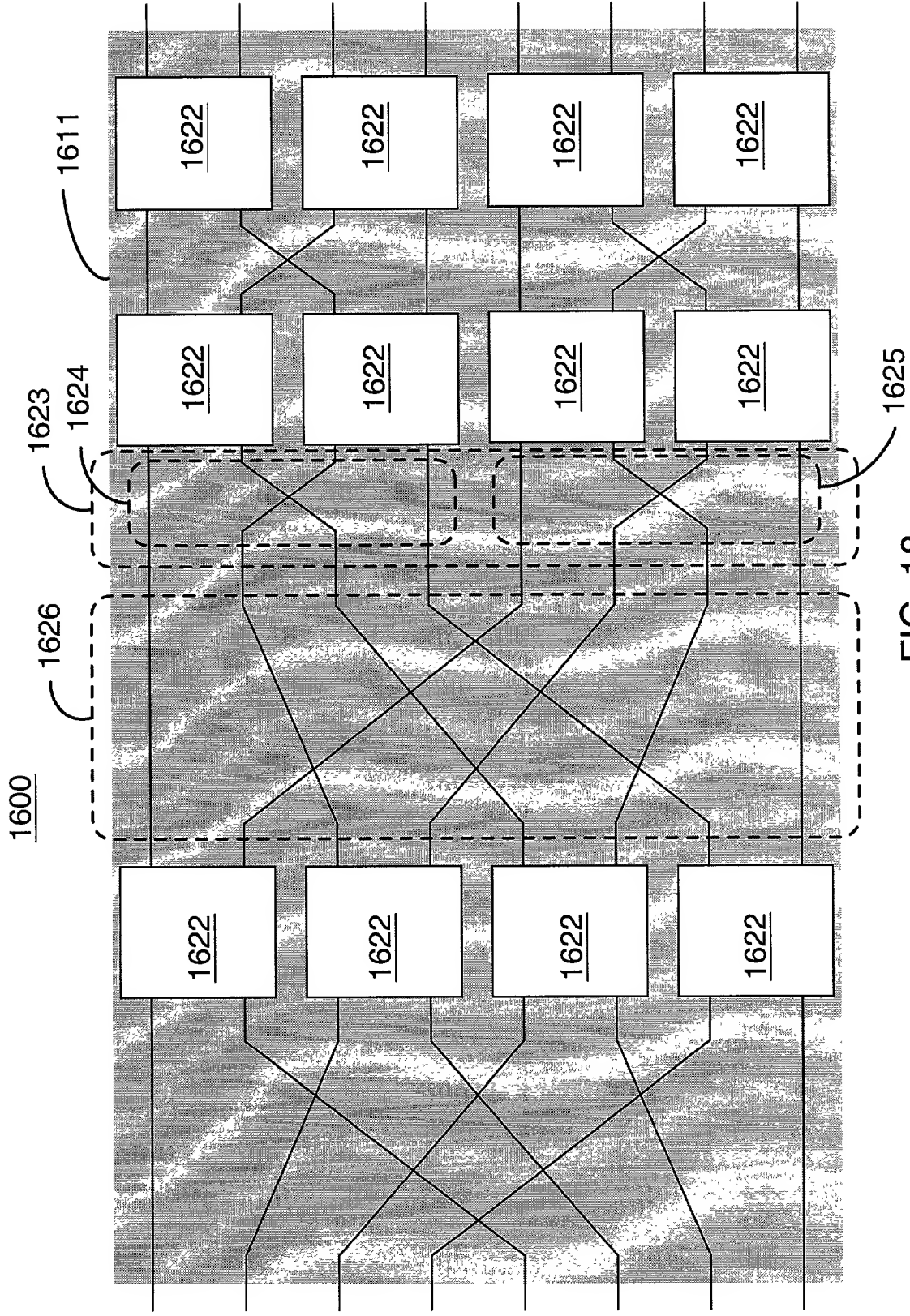


FIG. 18

1600

1631

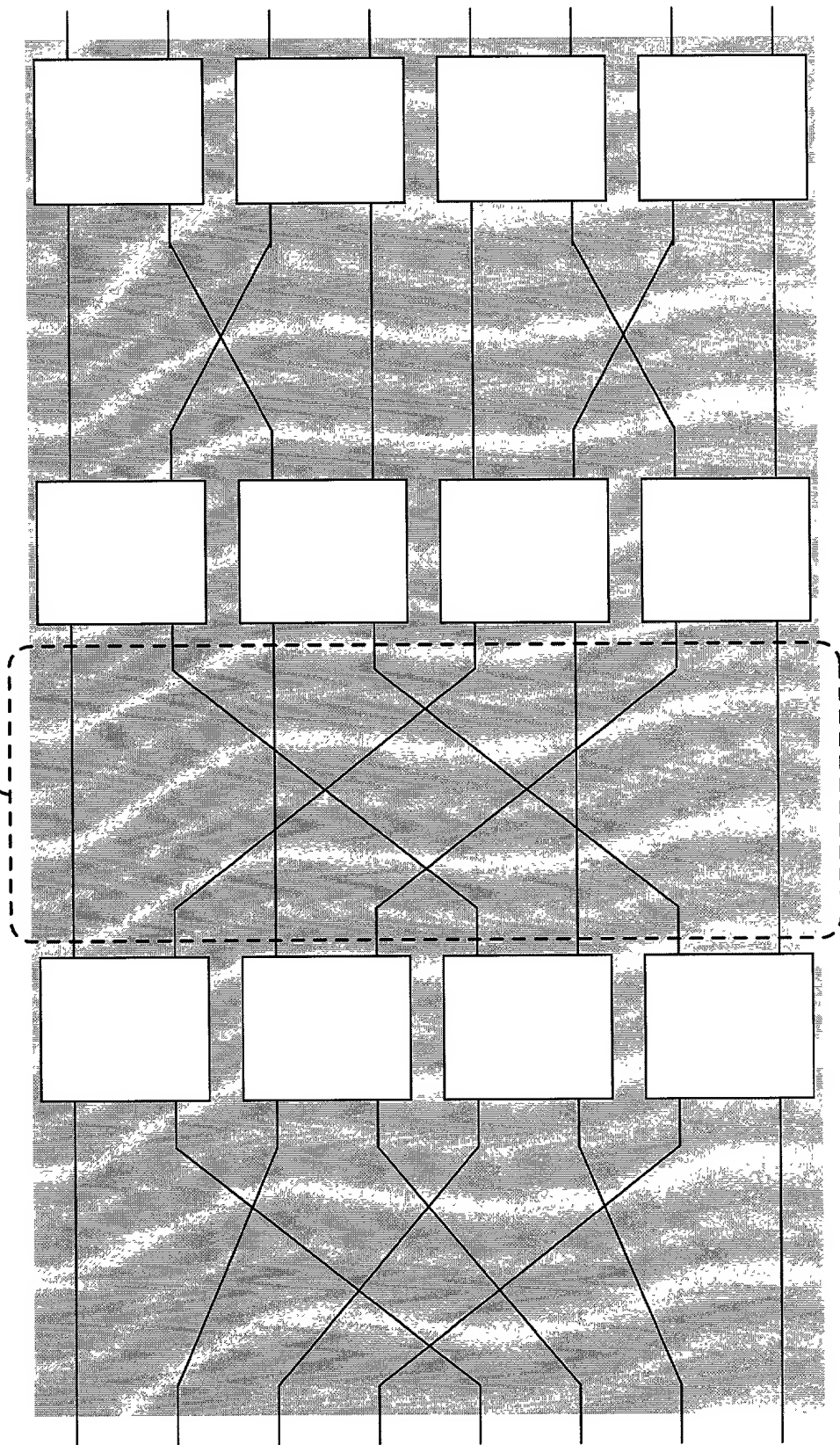


FIG. 19

2000

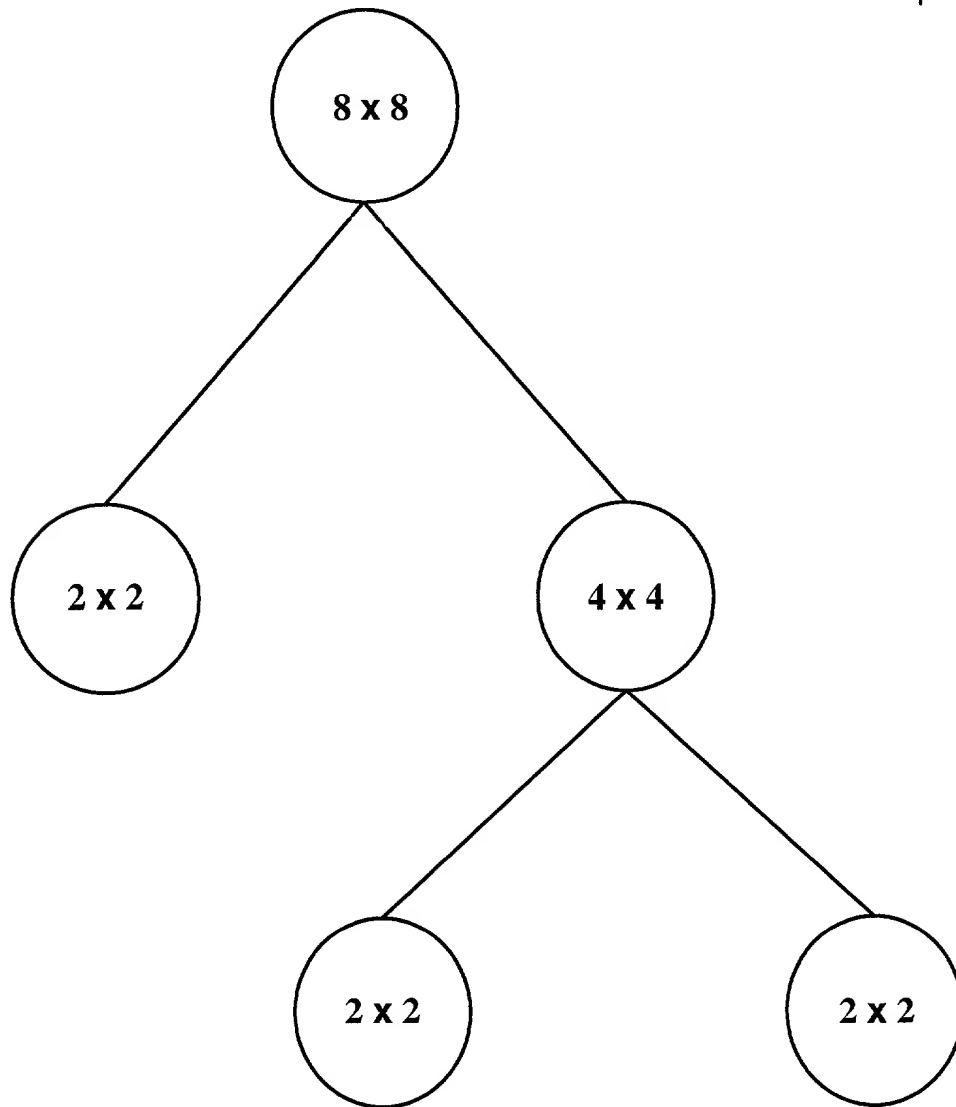


FIG. 20

2101 X(3 2 1)

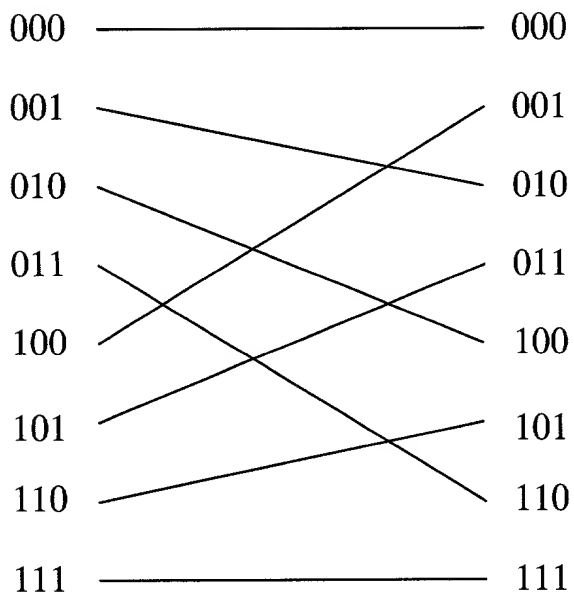


FIG. 21A

2102 X(1 2 3)

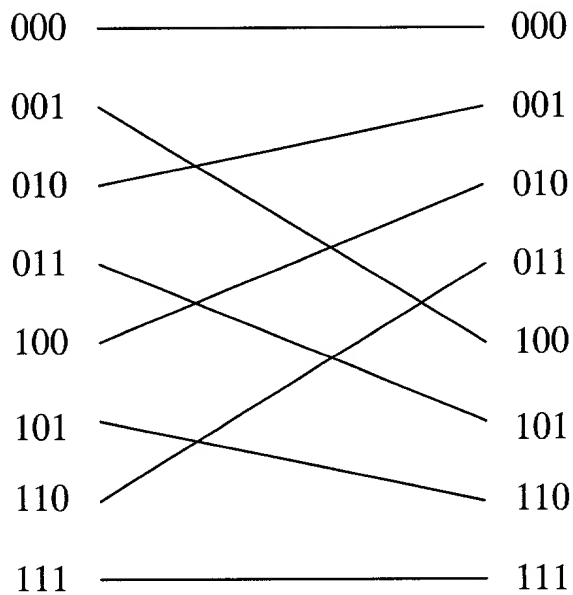


FIG. 21B

2103 X(3 1)

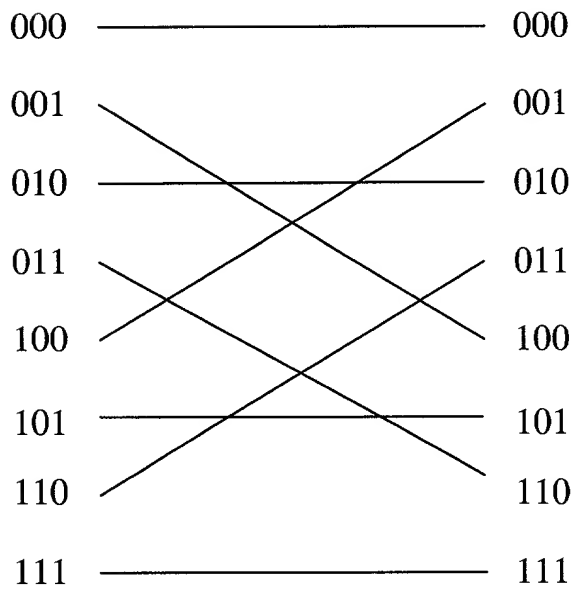


FIG. 21C

2104 X(1 4)(2 3)

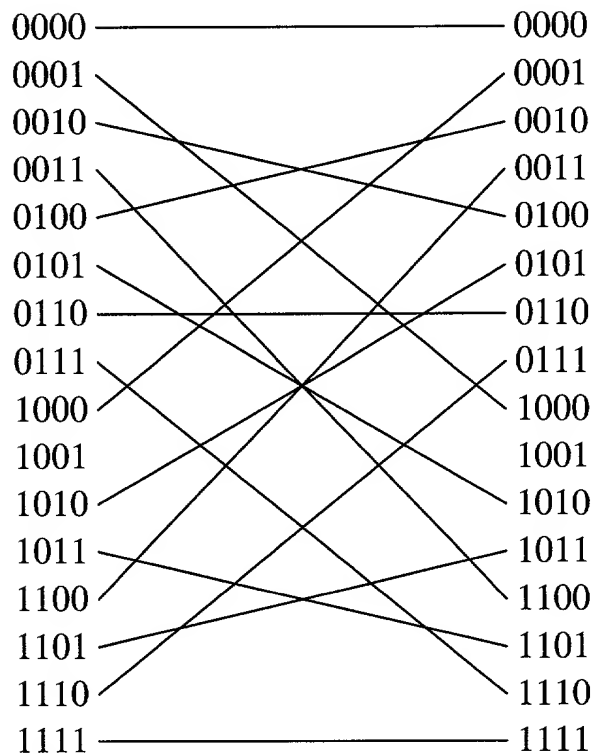
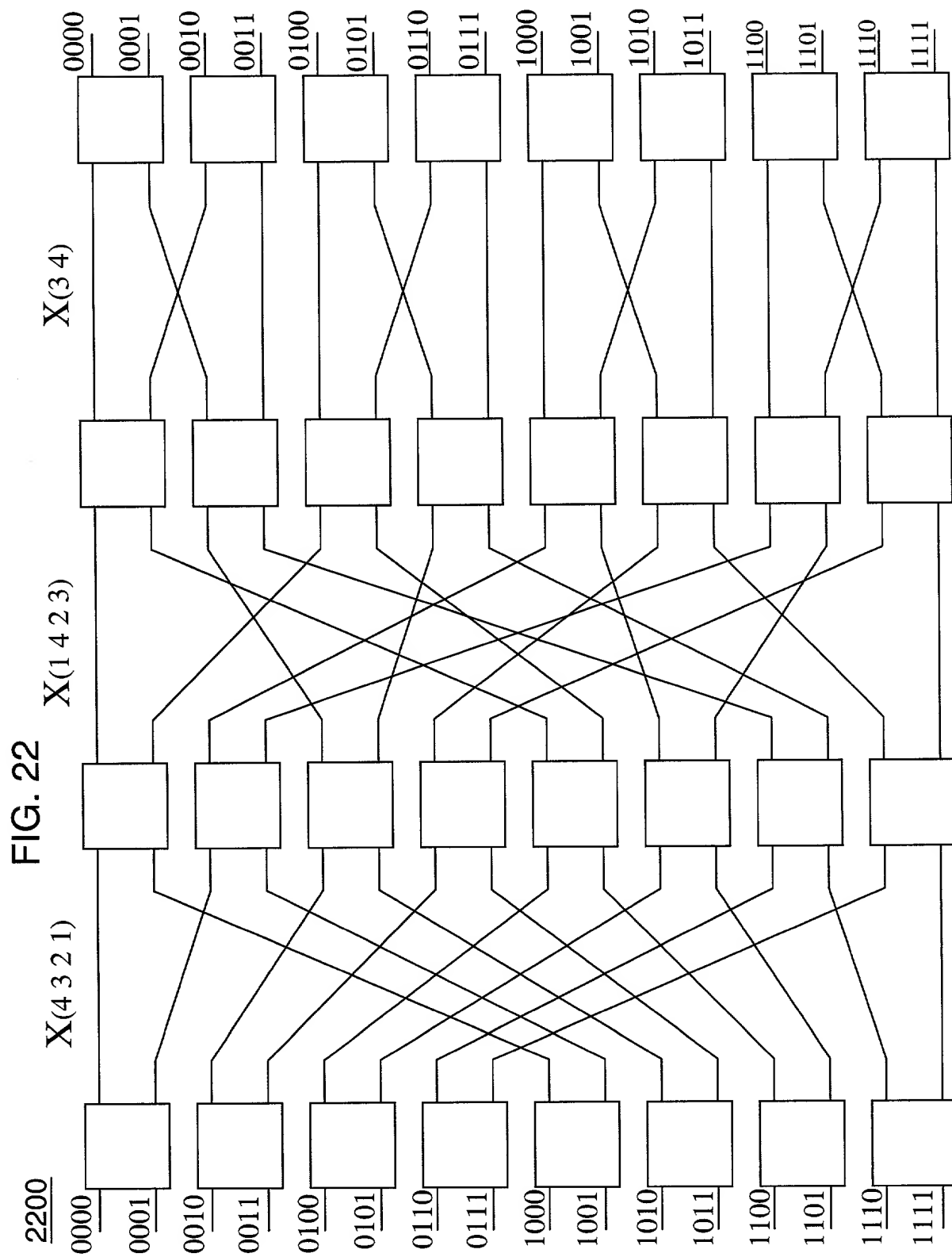


FIG. 21D



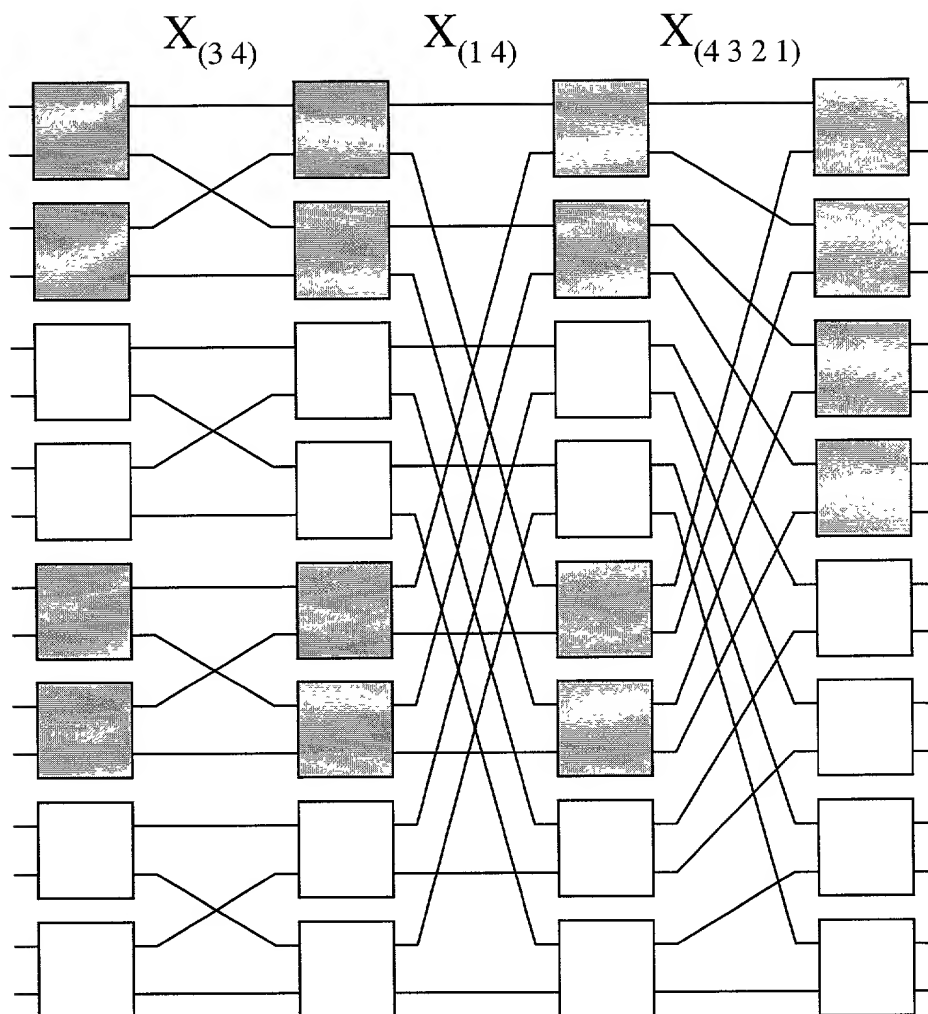


FIG. 24

FIG. 25

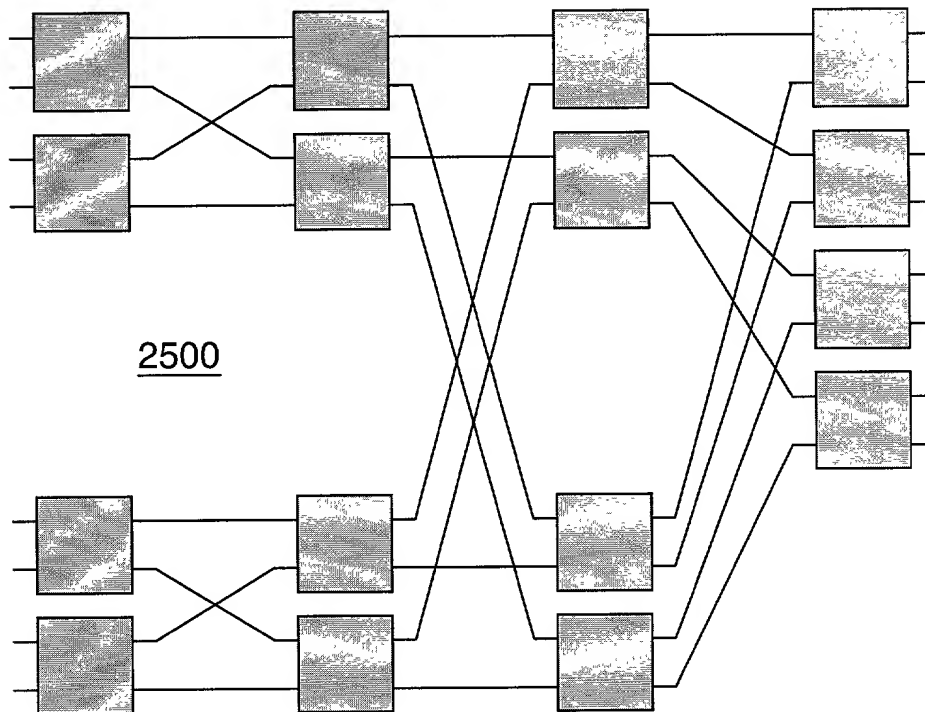
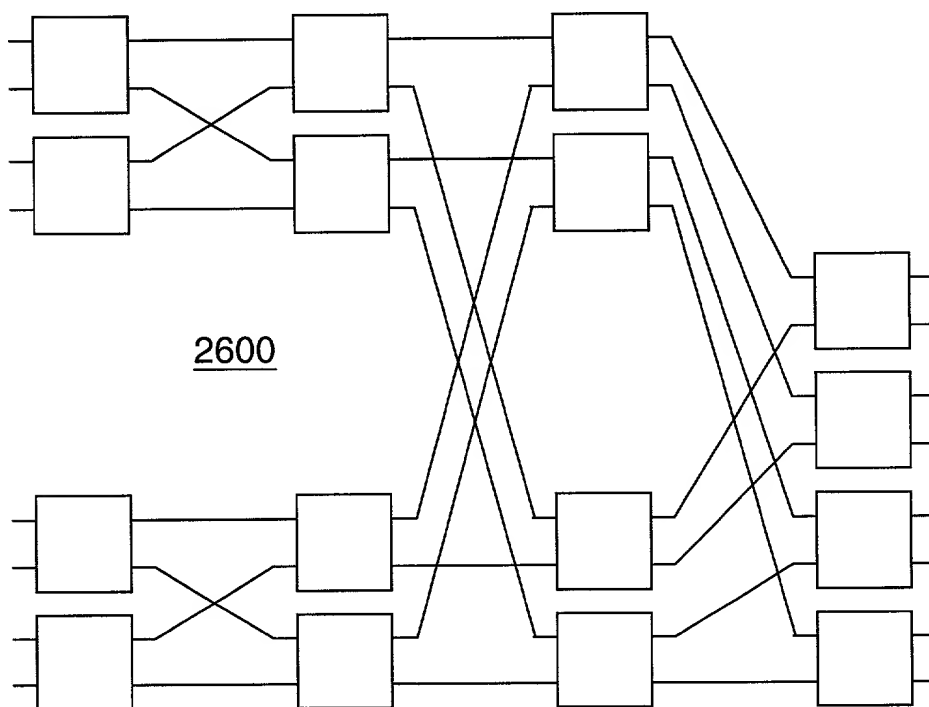


FIG. 26



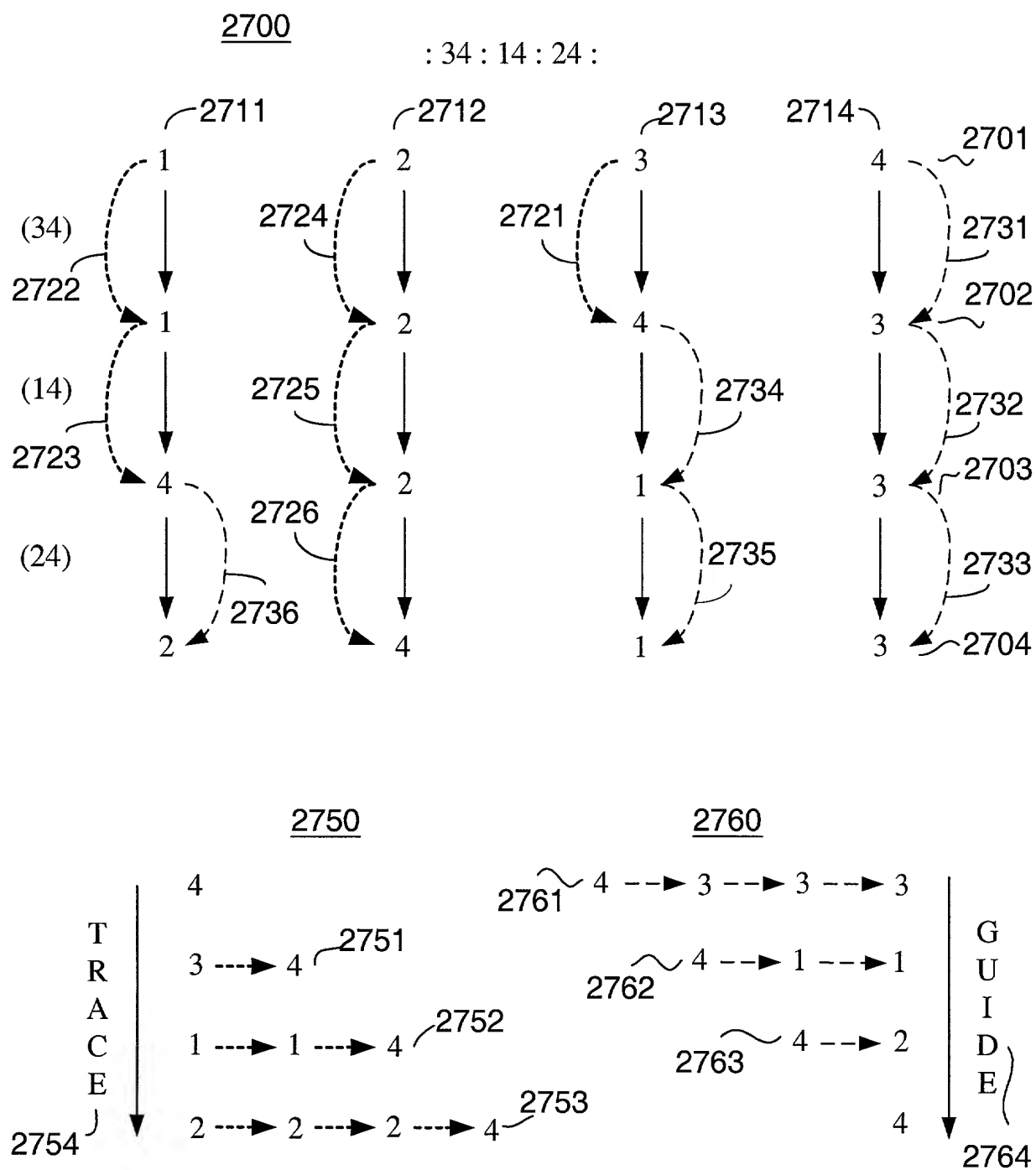


FIG. 27

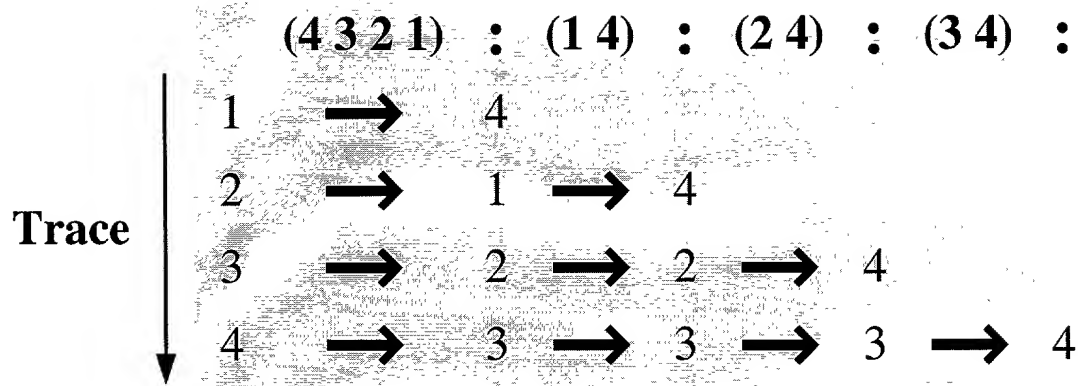


FIG. 28A

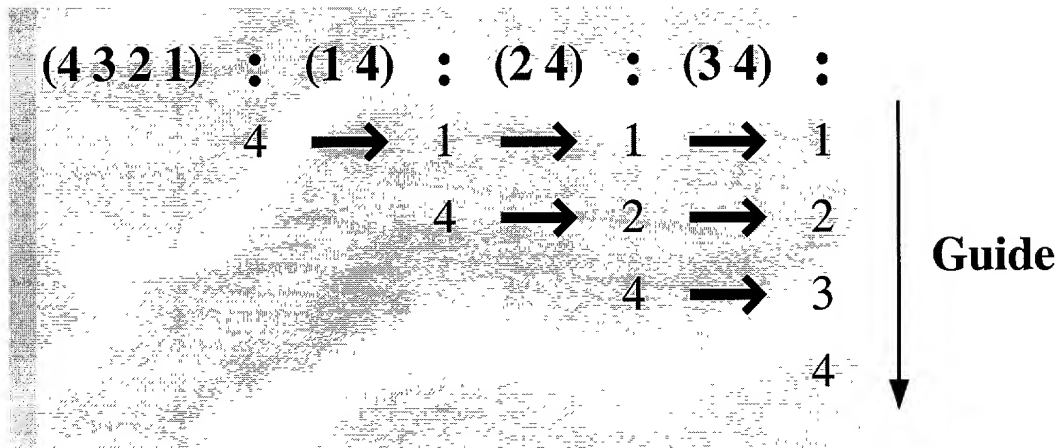


FIG. 28B

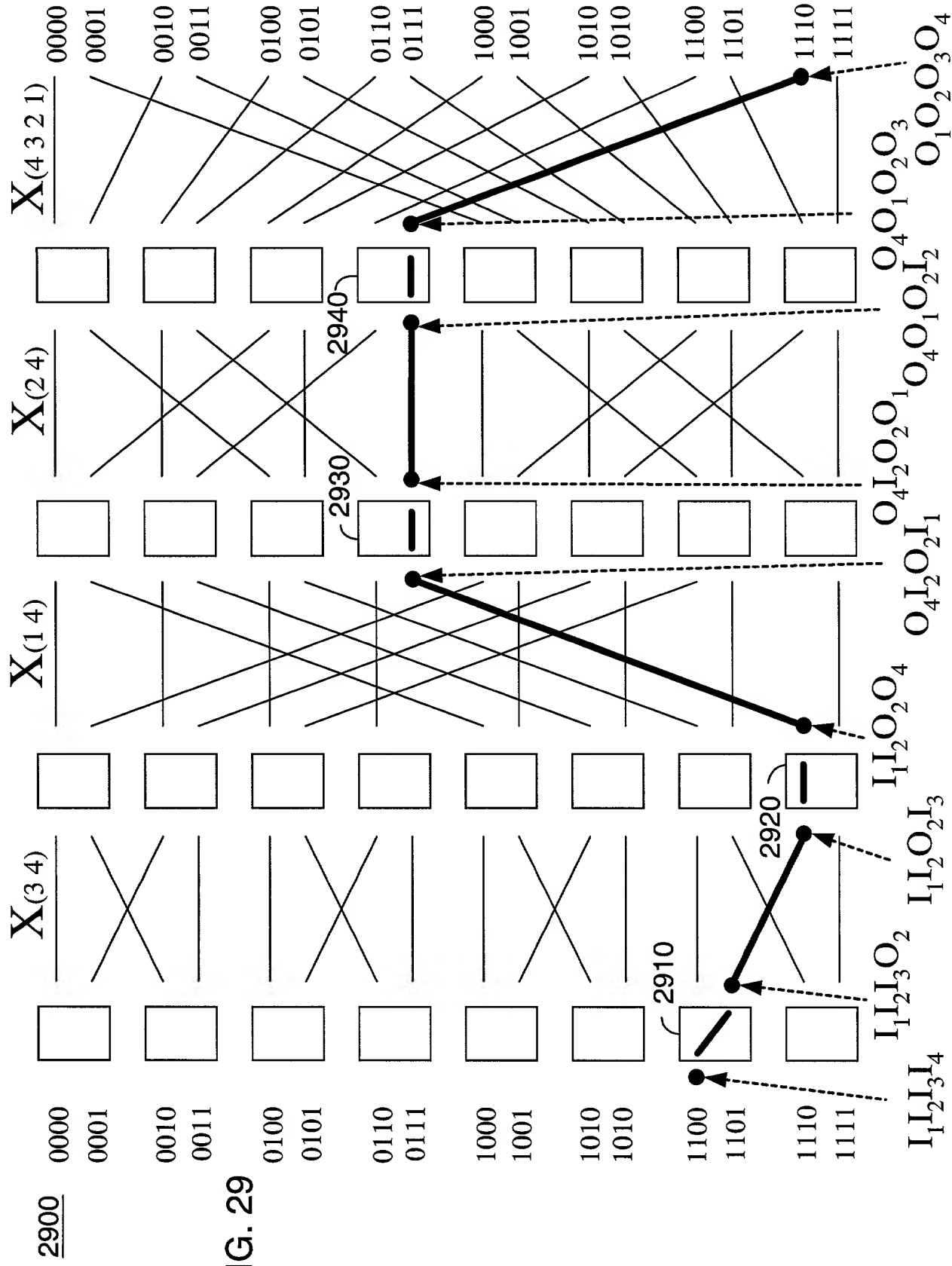


FIG. 30A

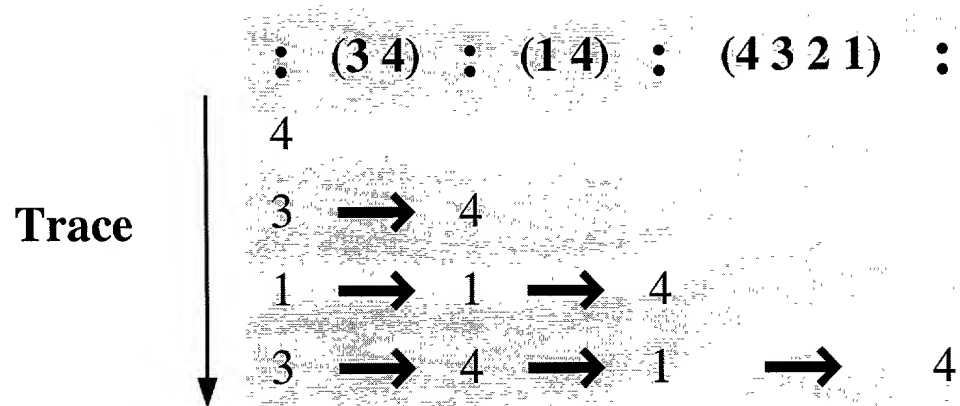
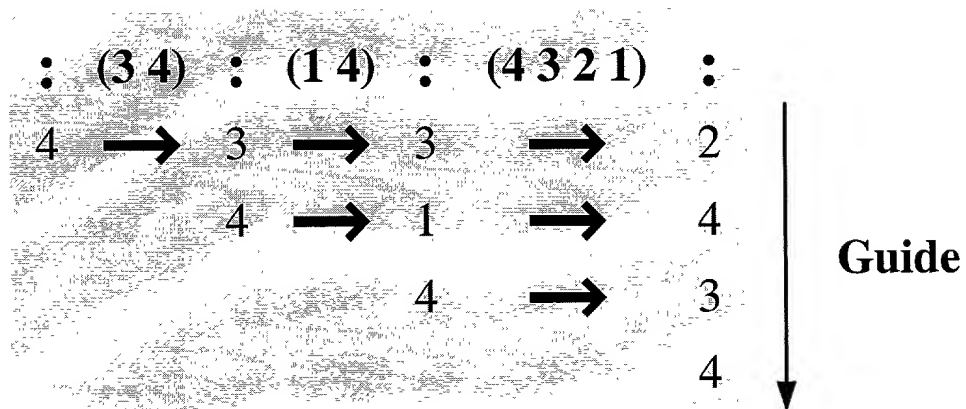


FIG. 30B



3100

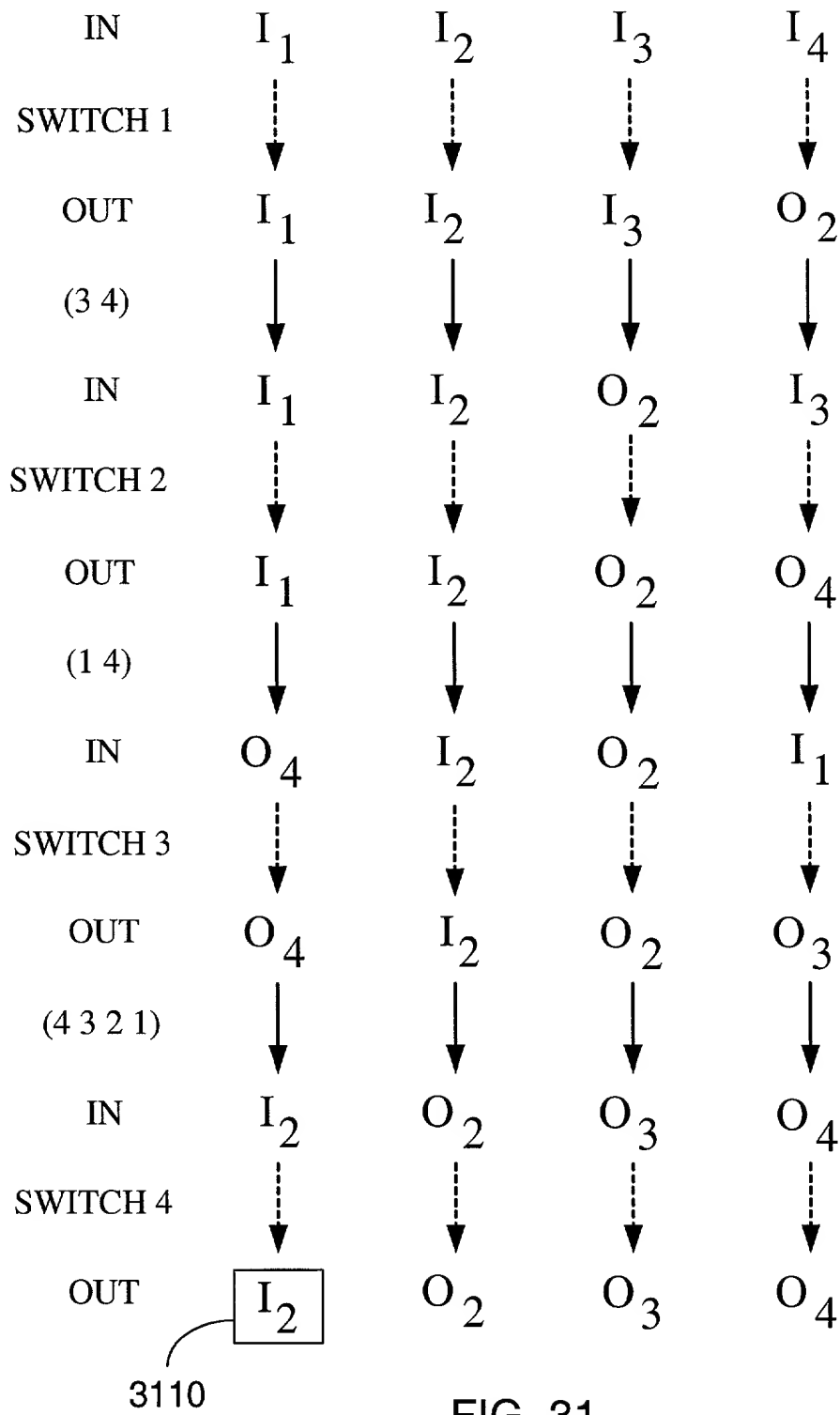


FIG. 31

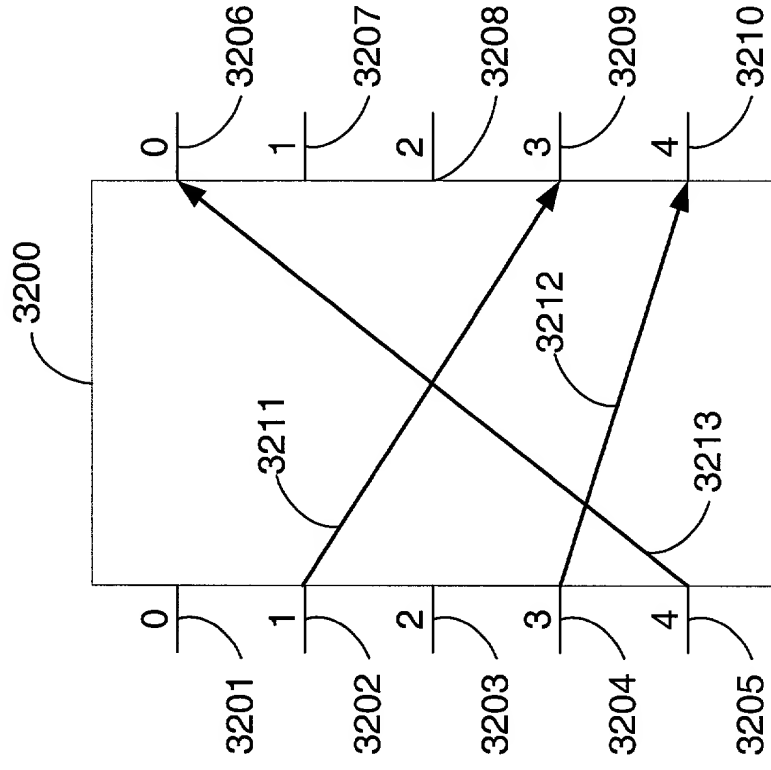


FIG. 32A

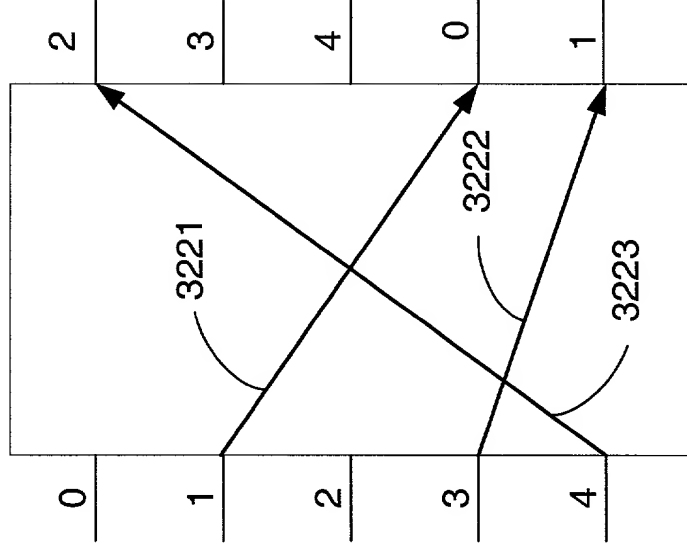


FIG. 32B

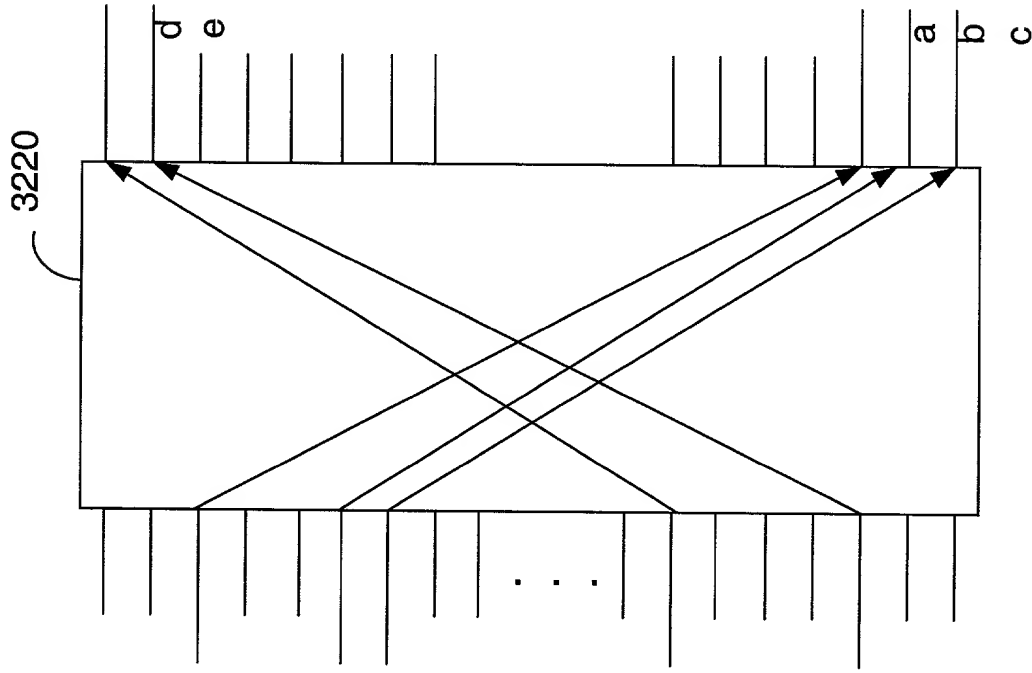


FIG. 32C

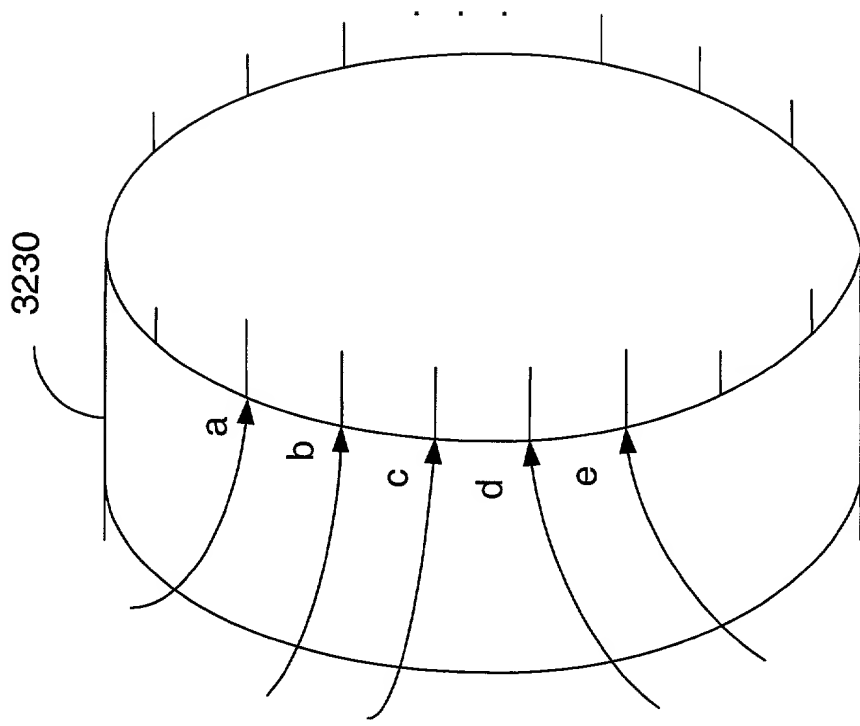


FIG. 32D

3300

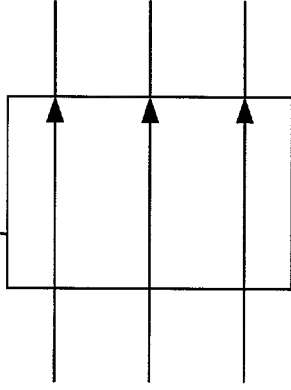


FIG. 33A

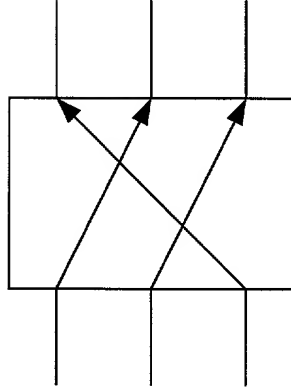


FIG. 33B

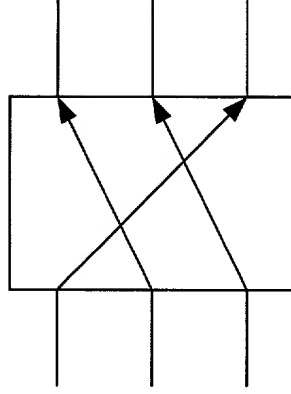


FIG. 33C

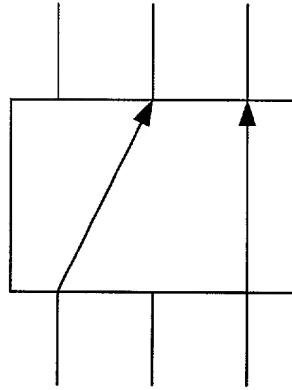


FIG. 33D

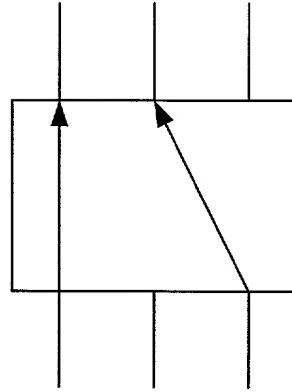


FIG. 33E

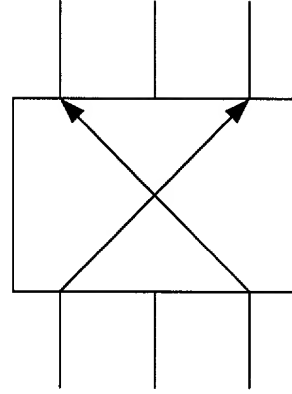


FIG. 33F

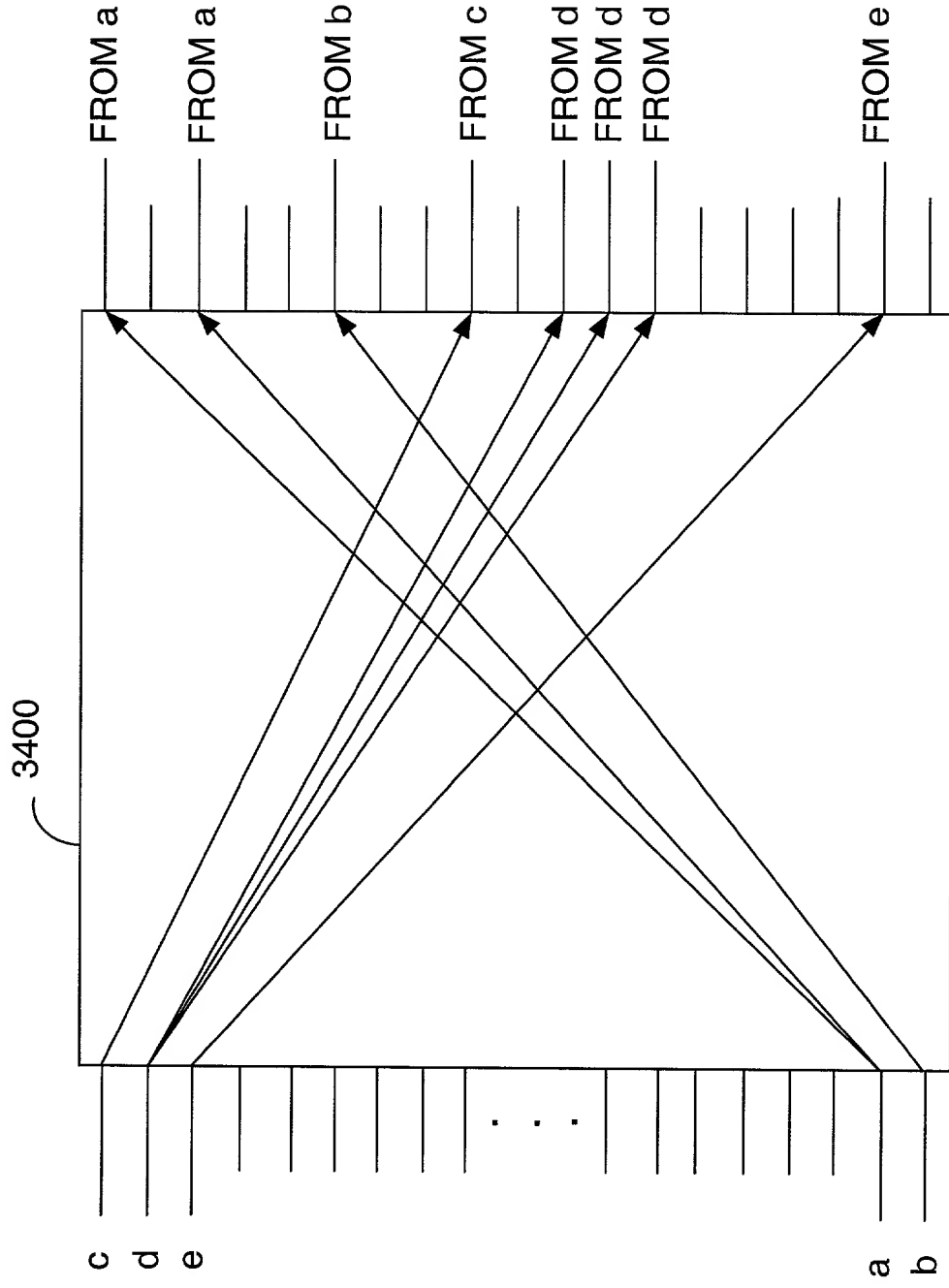


FIG. 34

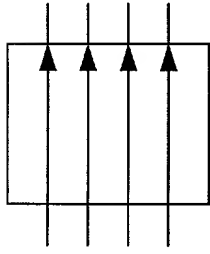


FIG. 35A

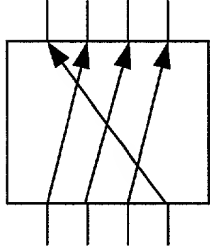


FIG. 35B

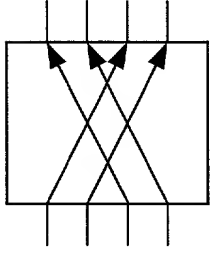


FIG. 35C

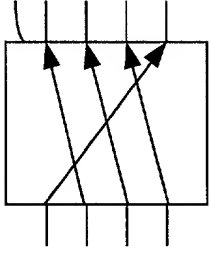


FIG. 35D

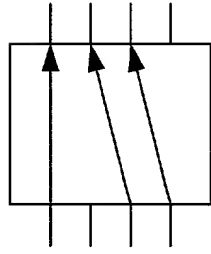


FIG. 35E

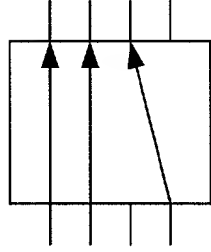


FIG. 35F

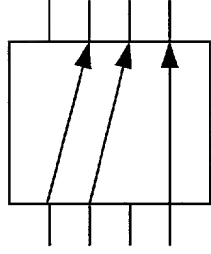


FIG. 35G

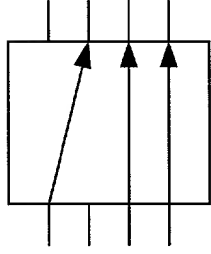


FIG. 35H

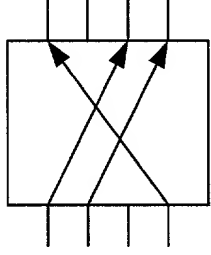


FIG. 35I

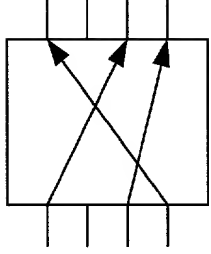


FIG. 35J

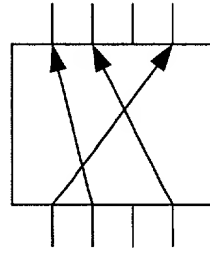


FIG. 35K

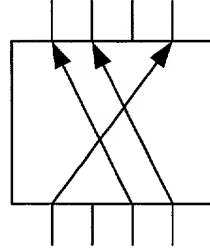


FIG. 35L

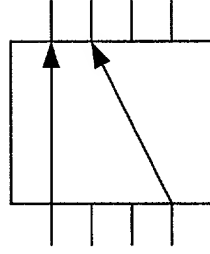


FIG. 35M

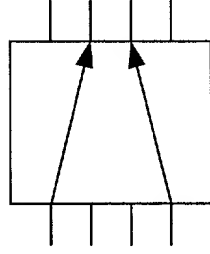


FIG. 35N

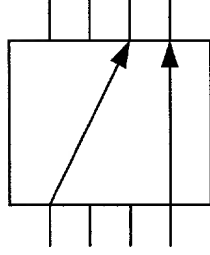


FIG. 35O

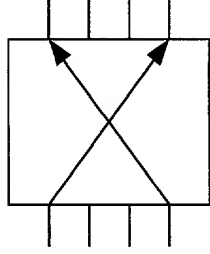


FIG. 35P

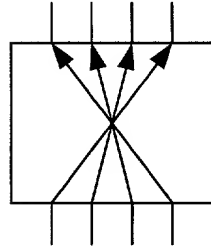


FIG. 36A

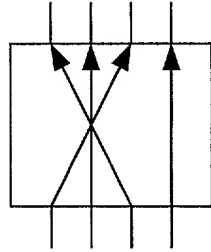


FIG. 36B

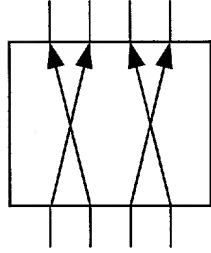


FIG. 36C

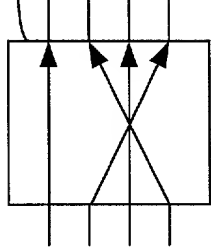


FIG. 36D

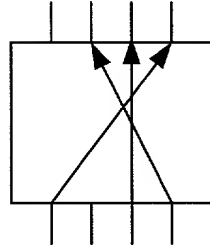


FIG. 36E

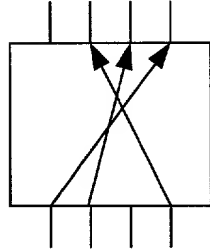


FIG. 36F

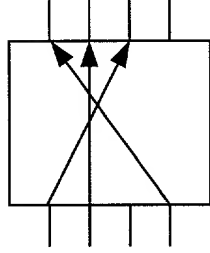


FIG. 36G

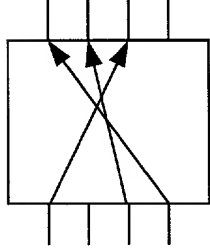


FIG. 36H

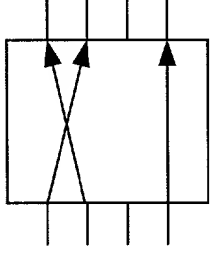


FIG. 36I

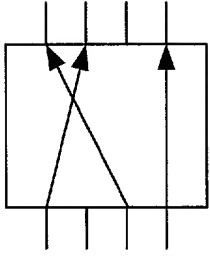


FIG. 36J

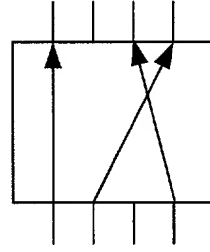


FIG. 36K

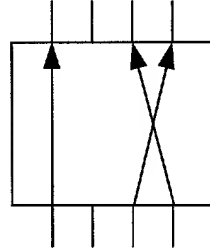


FIG. 36L

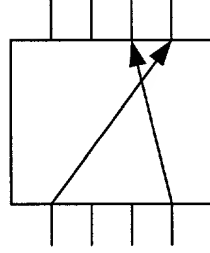


FIG. 36M

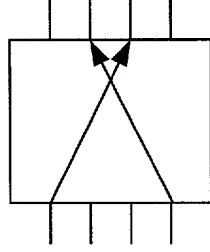


FIG. 36N

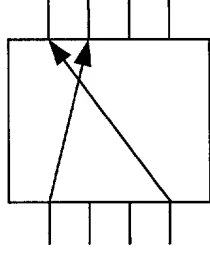


FIG. 36O

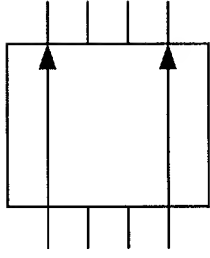


FIG. 36P

3500

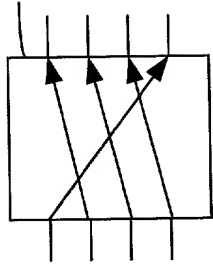


FIG. 37D

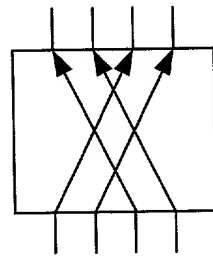


FIG. 37C

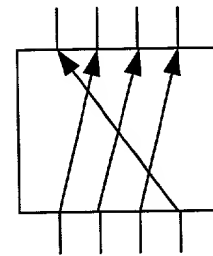


FIG. 37B

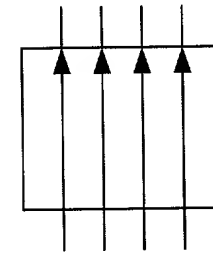


FIG. 37A

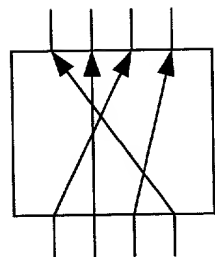


FIG. 37J

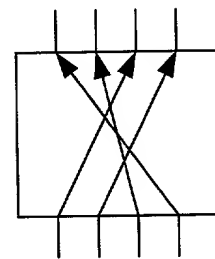


FIG. 37I

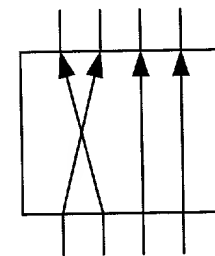


FIG. 37H

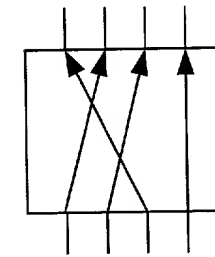


FIG. 37G

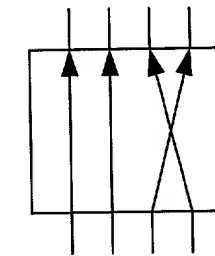


FIG. 37F

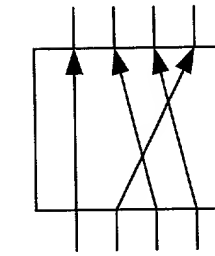


FIG. 37E

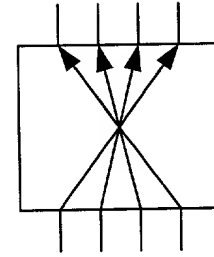


FIG. 37P

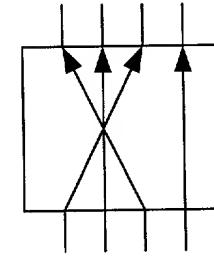


FIG. 37O

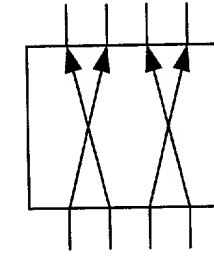


FIG. 37N

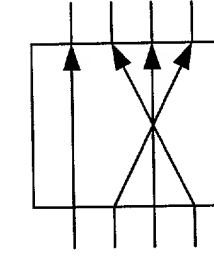


FIG. 37M

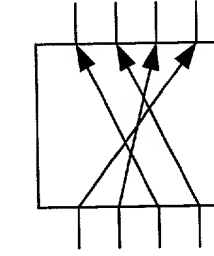


FIG. 37L

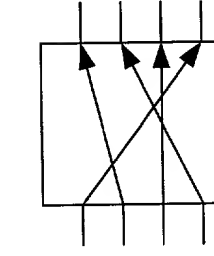


FIG. 37K

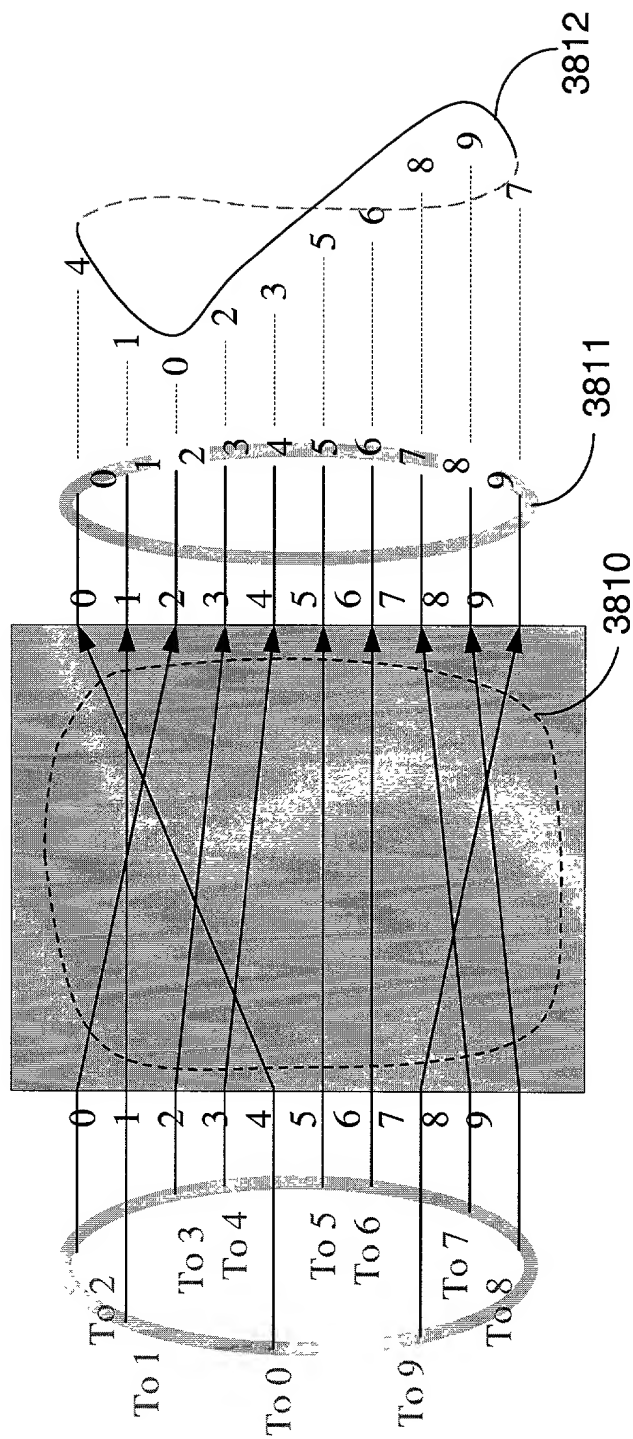


FIG. 38A

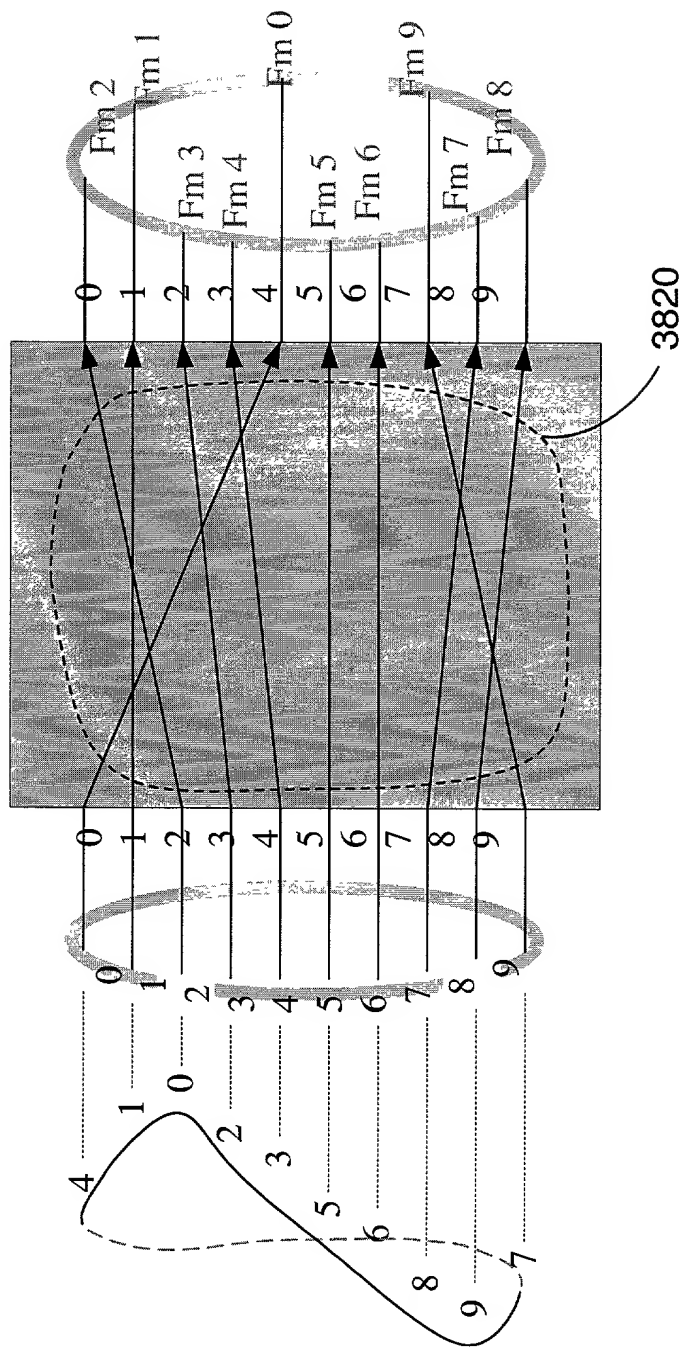


FIG.38B

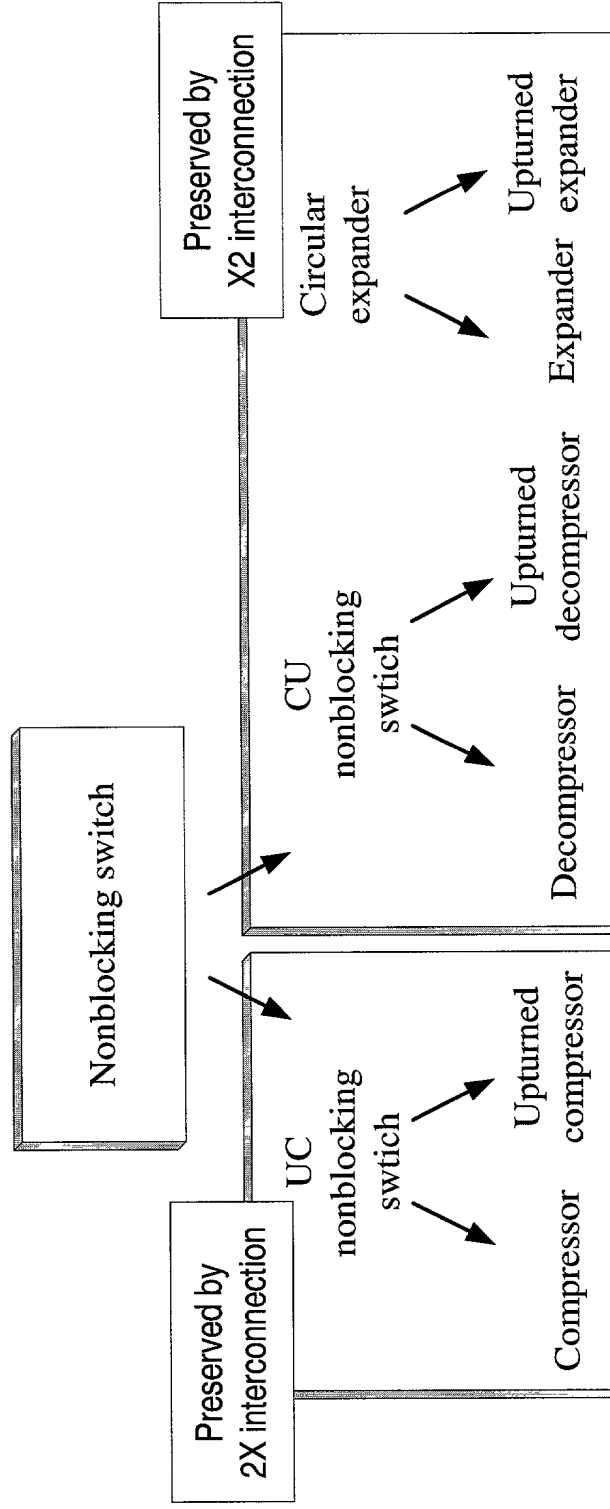


FIG. 39

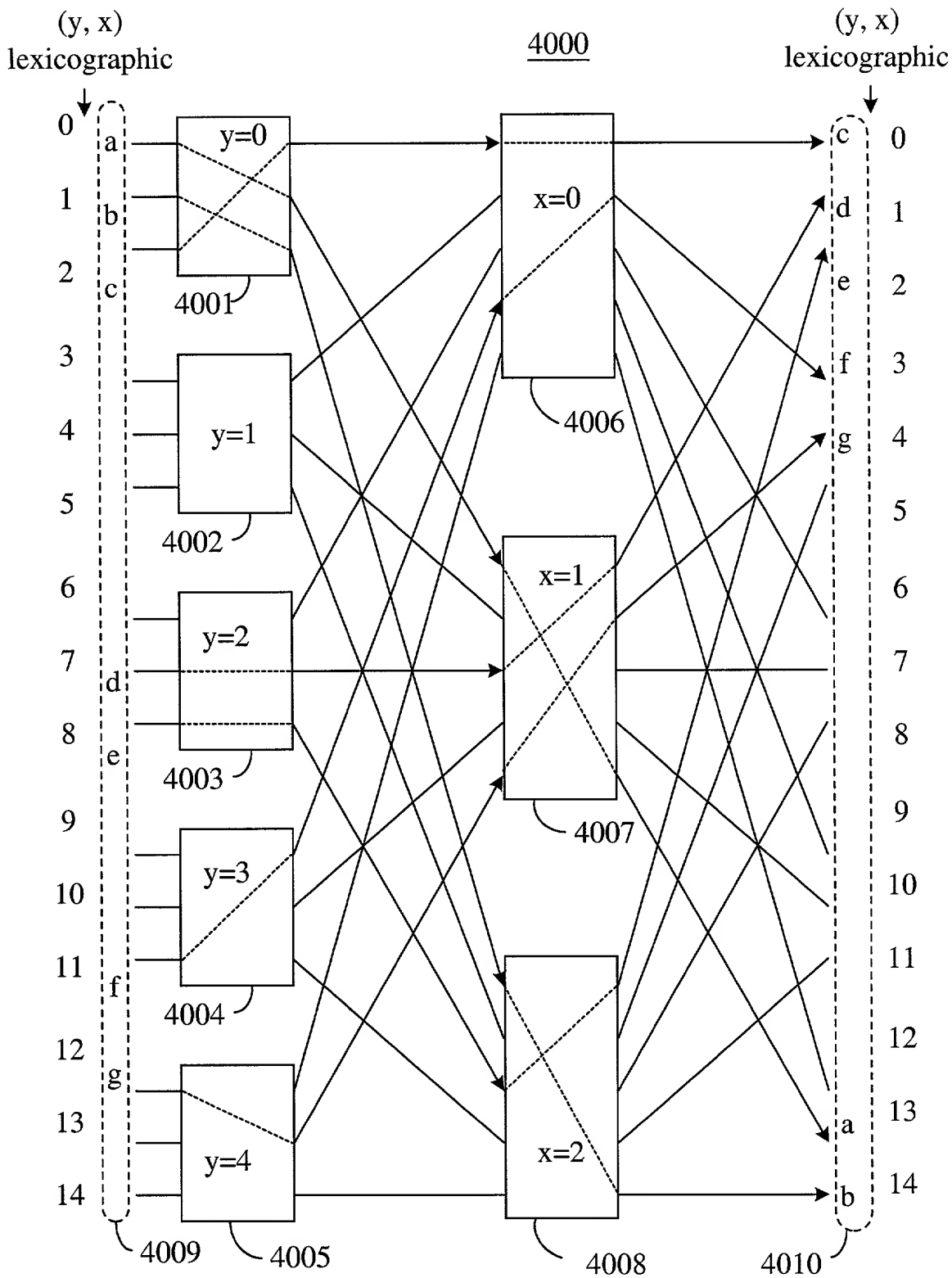
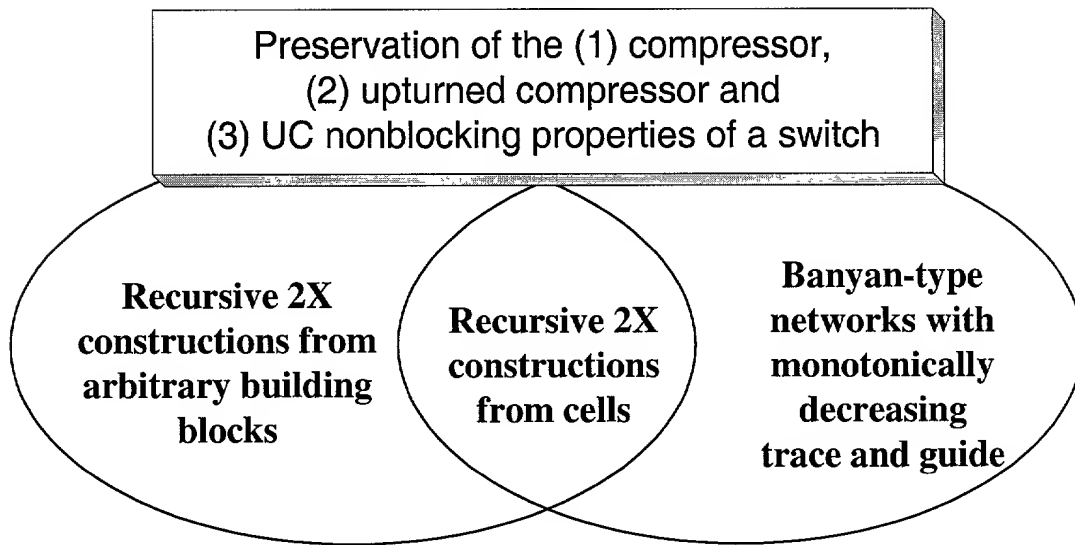


FIG. 40

4100



4110

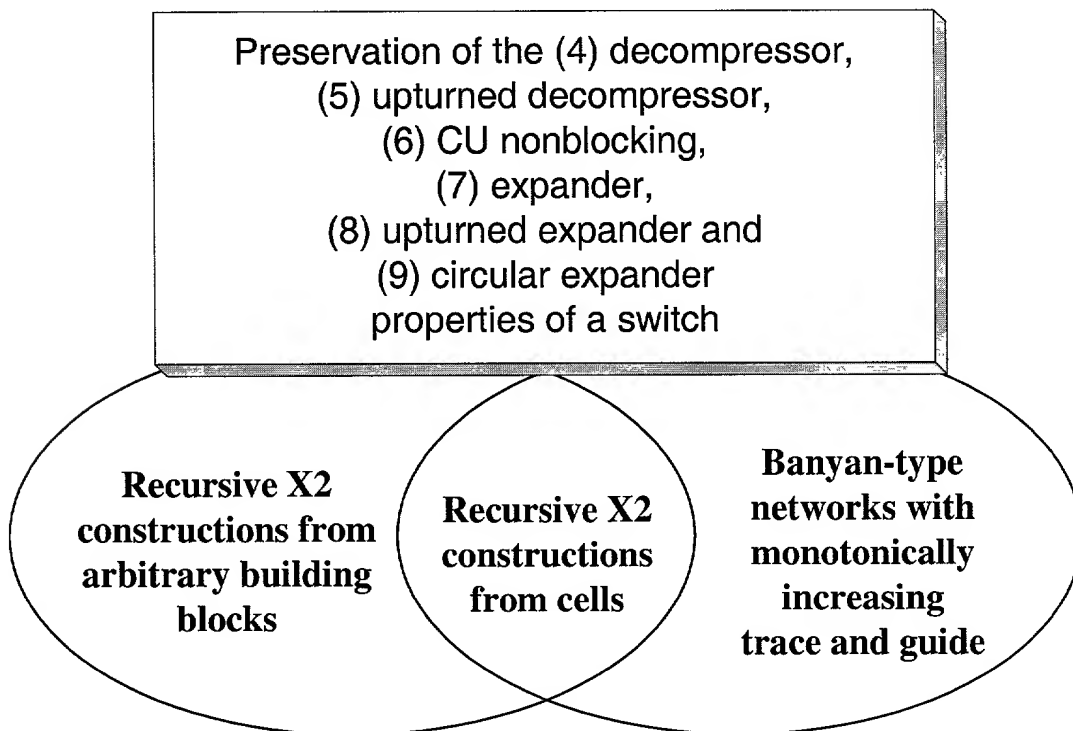


FIG. 41

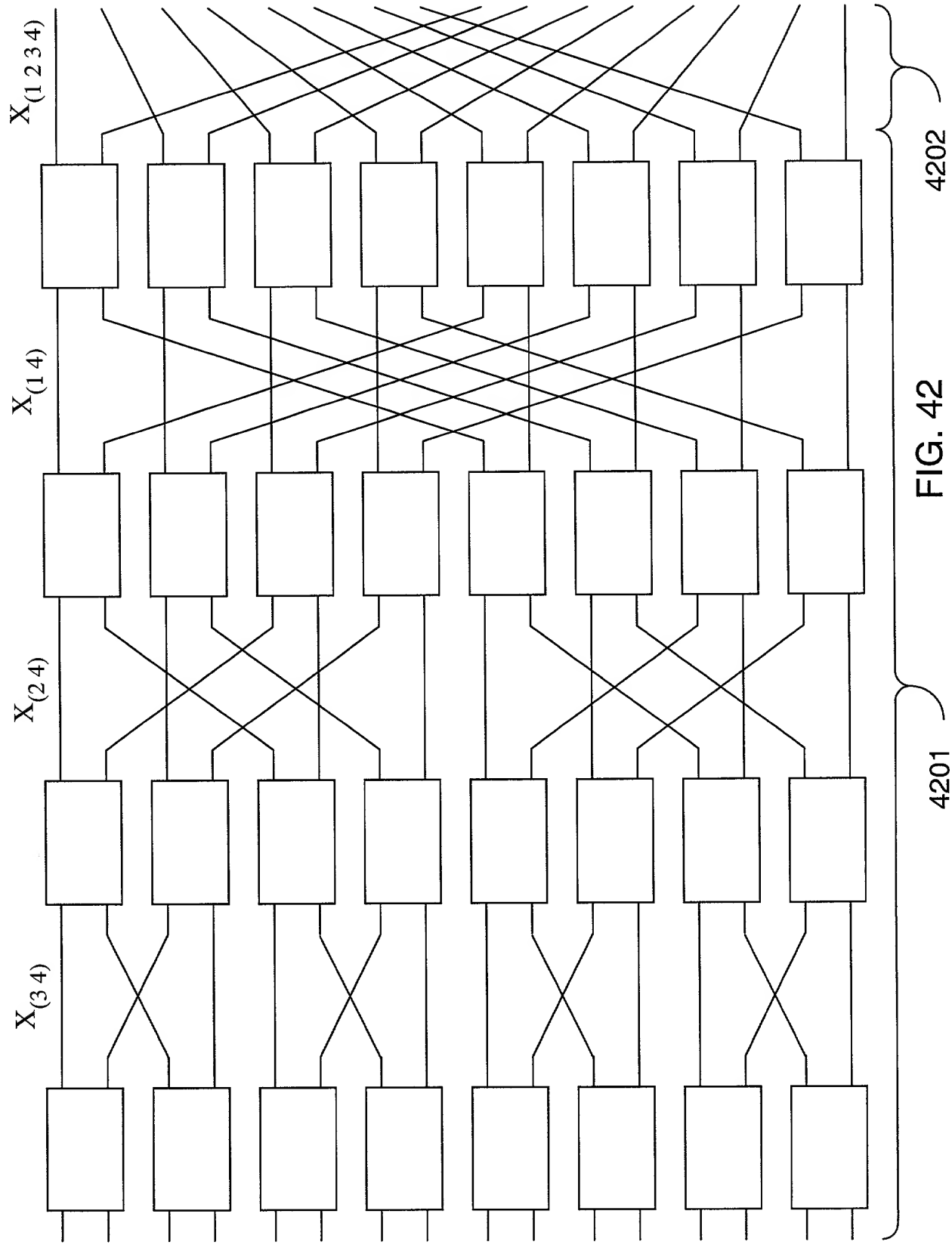
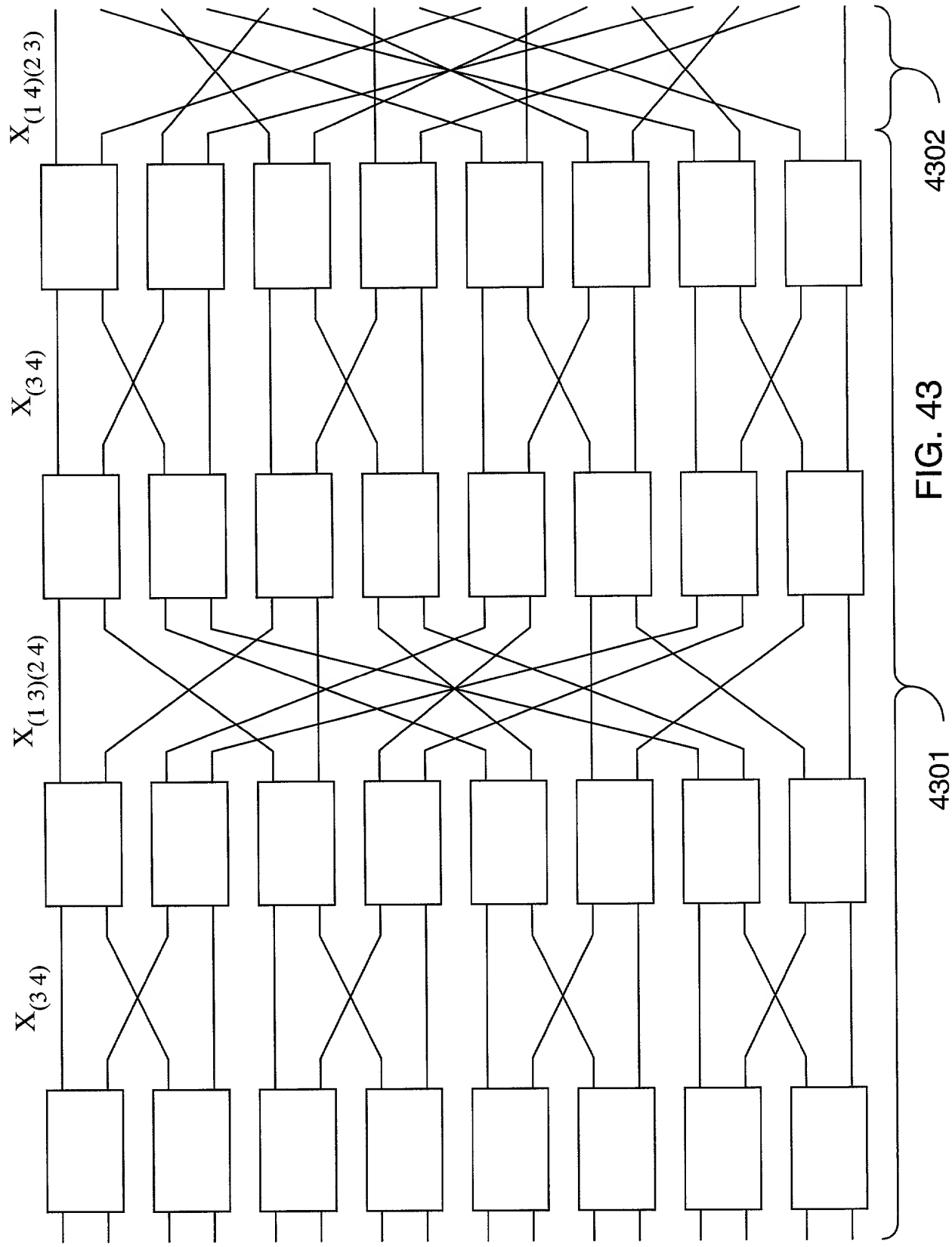


FIG. 42



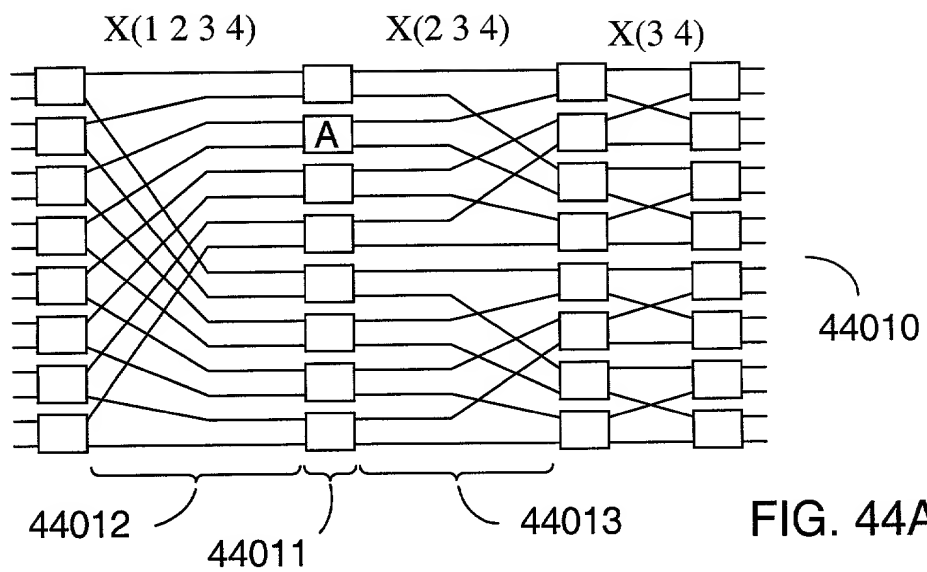


FIG. 44A

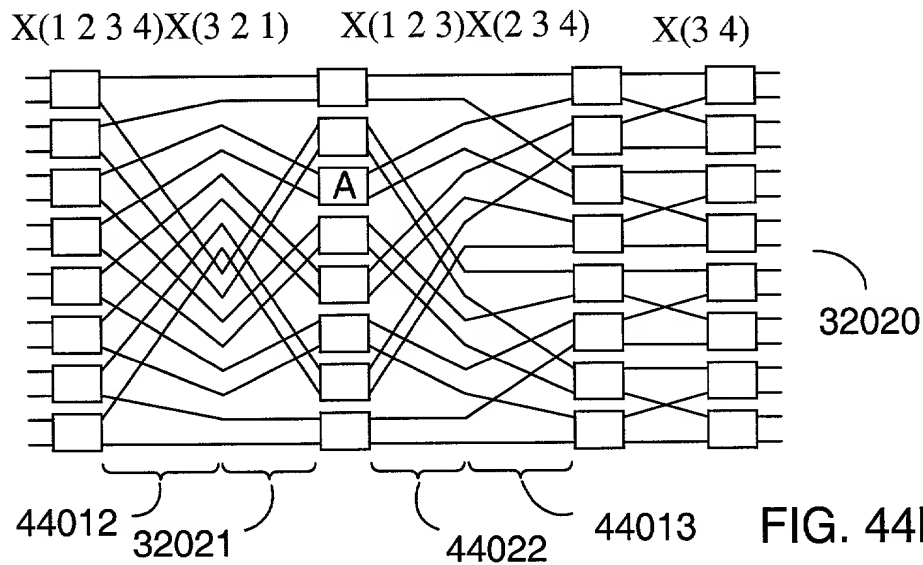


FIG. 44B

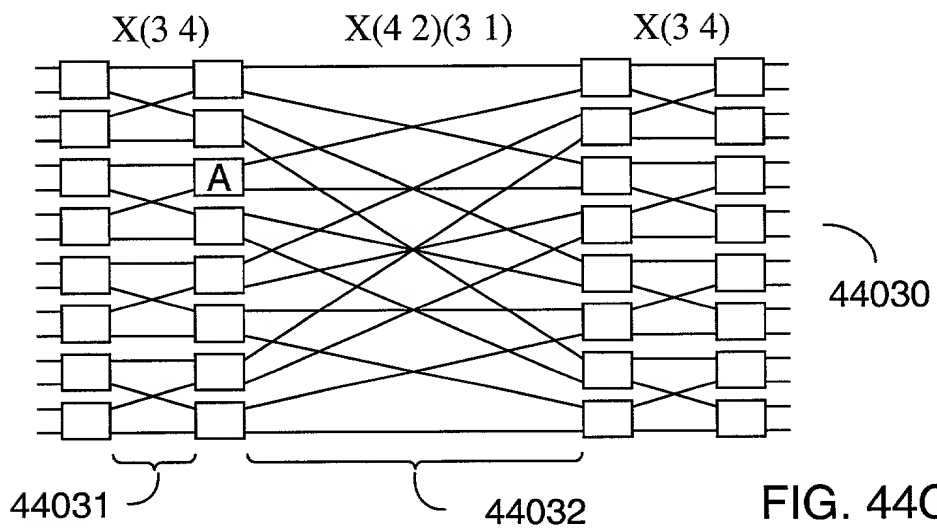


FIG. 44C

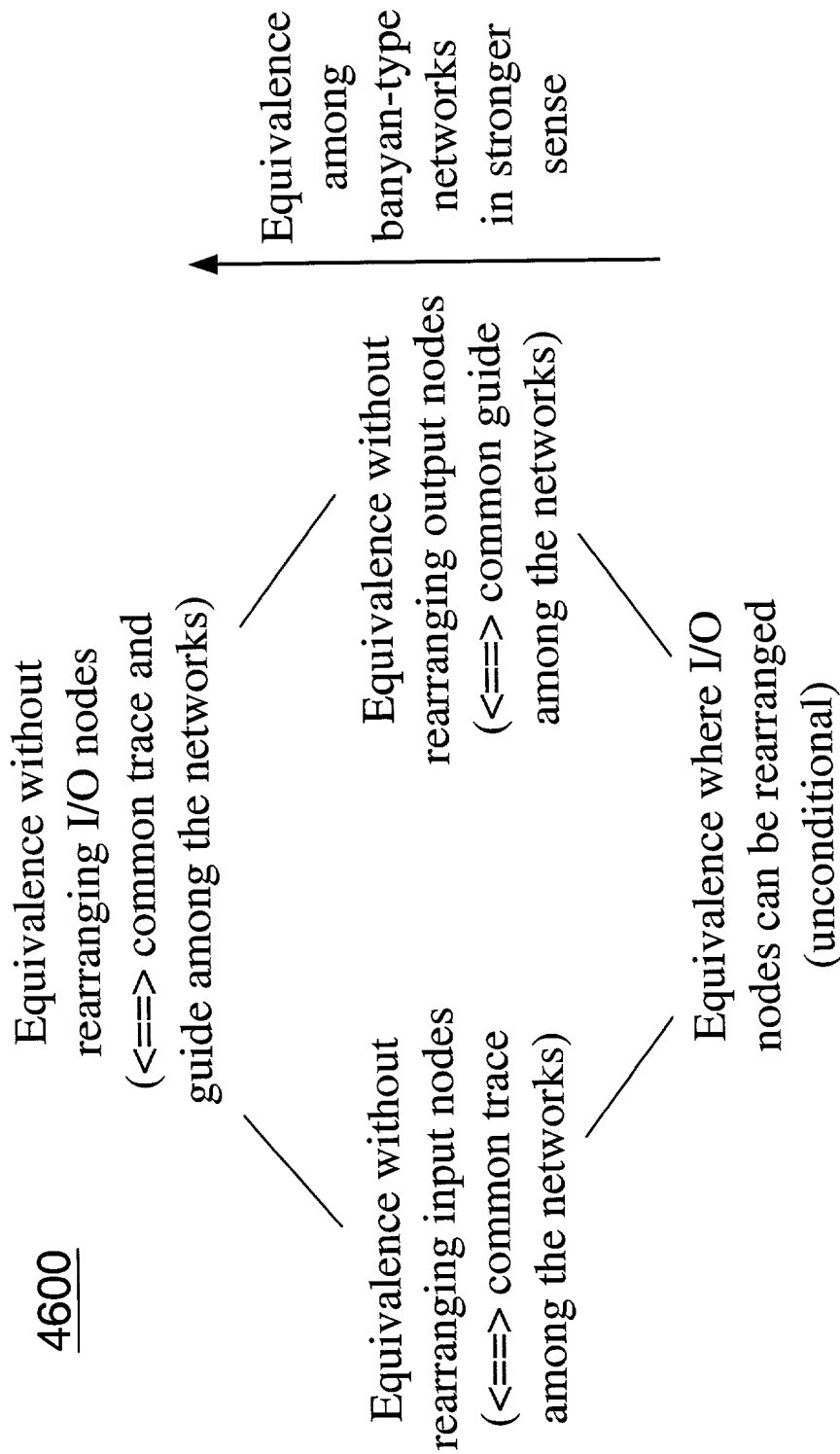


FIG. 46

```

graph TD
    A[Equivalence among banyan-type networks in stronger sense] --> B[Equivalence without rearranging output nodes (<==> common guide among the networks)]
    A --> C[Equivalence without rearranging input nodes (<==> common trace among the networks)]
    B --> D[Equivalence where I/O nodes can be rearranged (unconditional)]
    C --> D
  
```

4700

Equivalence without rearranging I/O nodes ($\langle \implies \rangle$ common trace and guide among the networks)

Equivalence without rearranging output nodes ($\langle \implies \rangle$ common guide among the networks)

Equivalence without rearranging input nodes ($\langle \implies \rangle$ common trace among the networks)

Equivalence where I/O nodes can be rearranged (unconditional)

FIG. 47

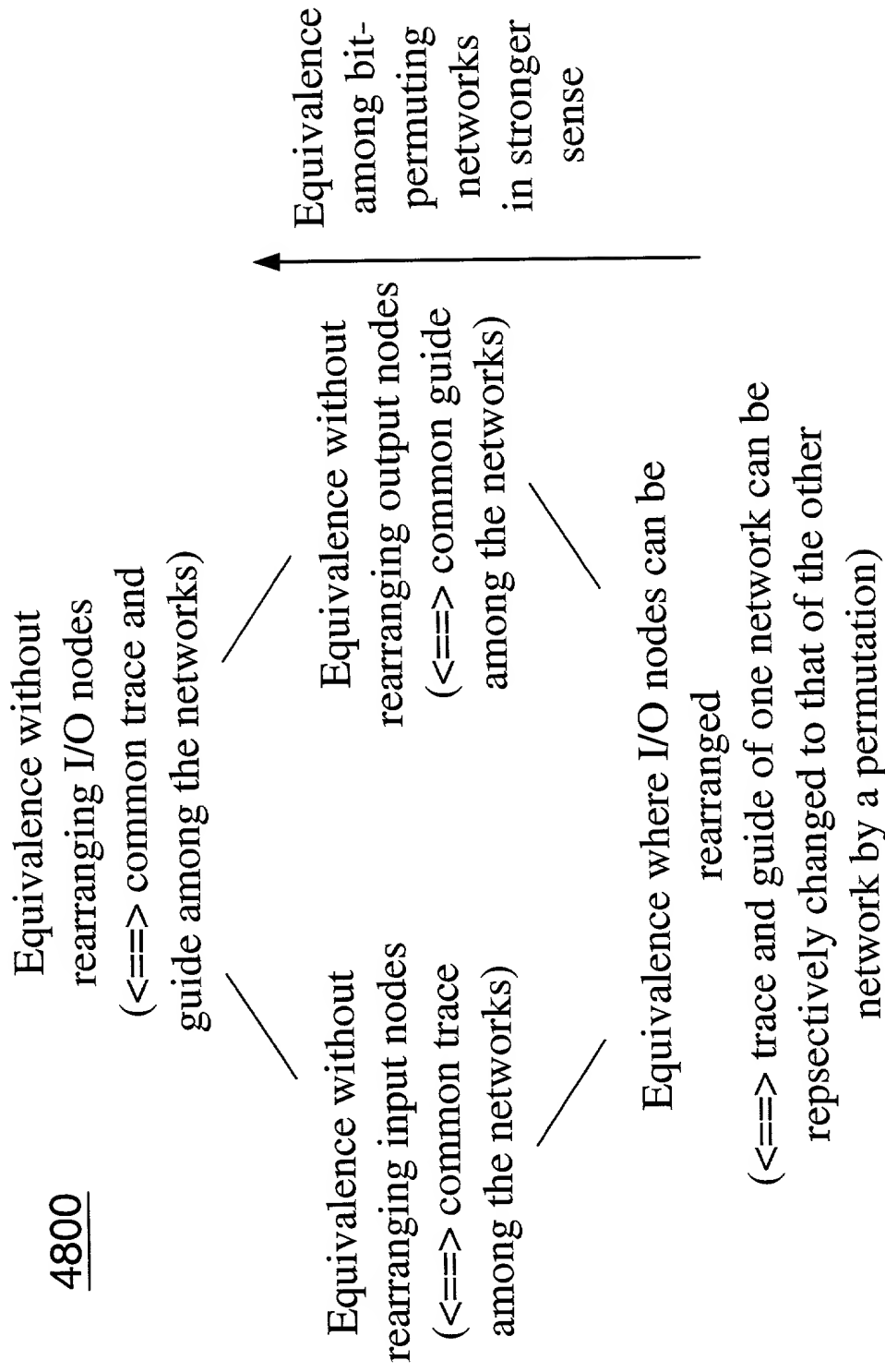


FIG. 48

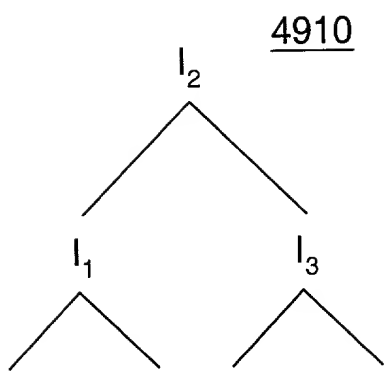


FIG. 49A

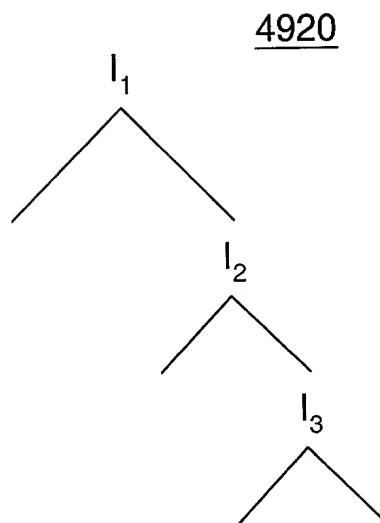


FIG. 49B

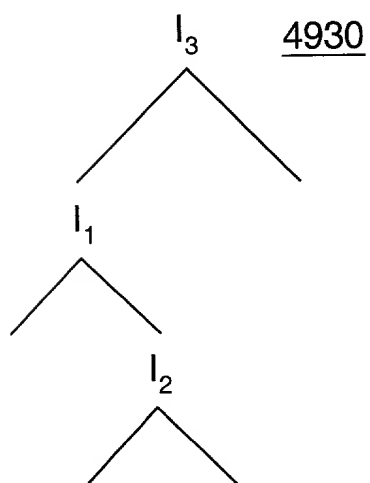


FIG. 49C

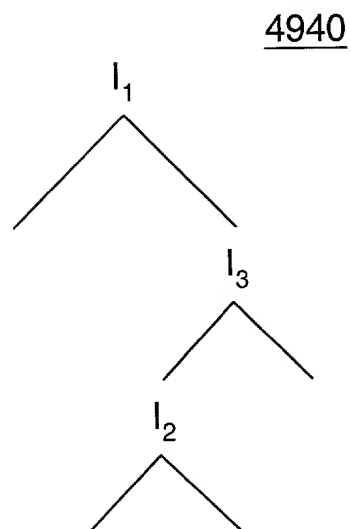


FIG. 49D

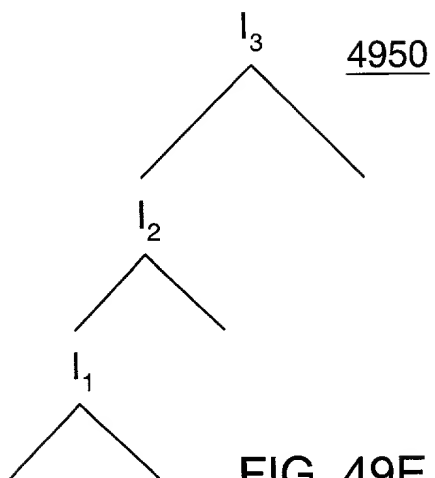


FIG. 49E

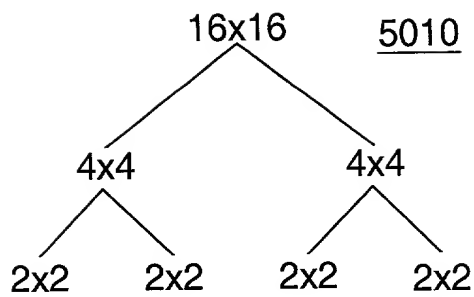


FIG. 50A

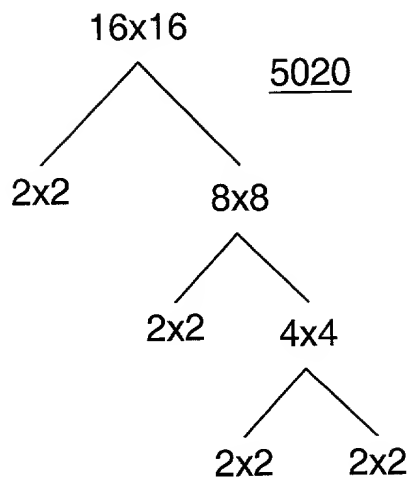


FIG. 50B

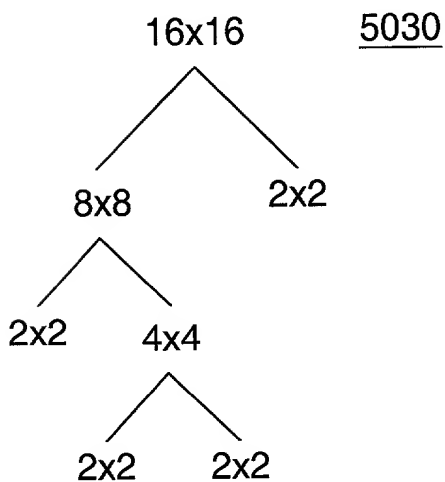


FIG. 50C

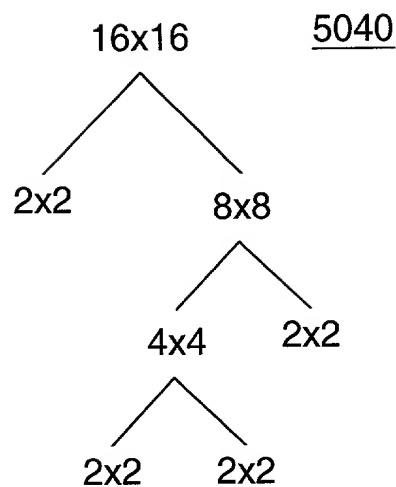


FIG. 50D

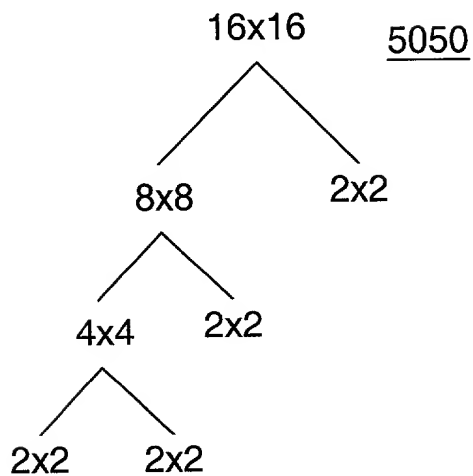


FIG. 50E

5100

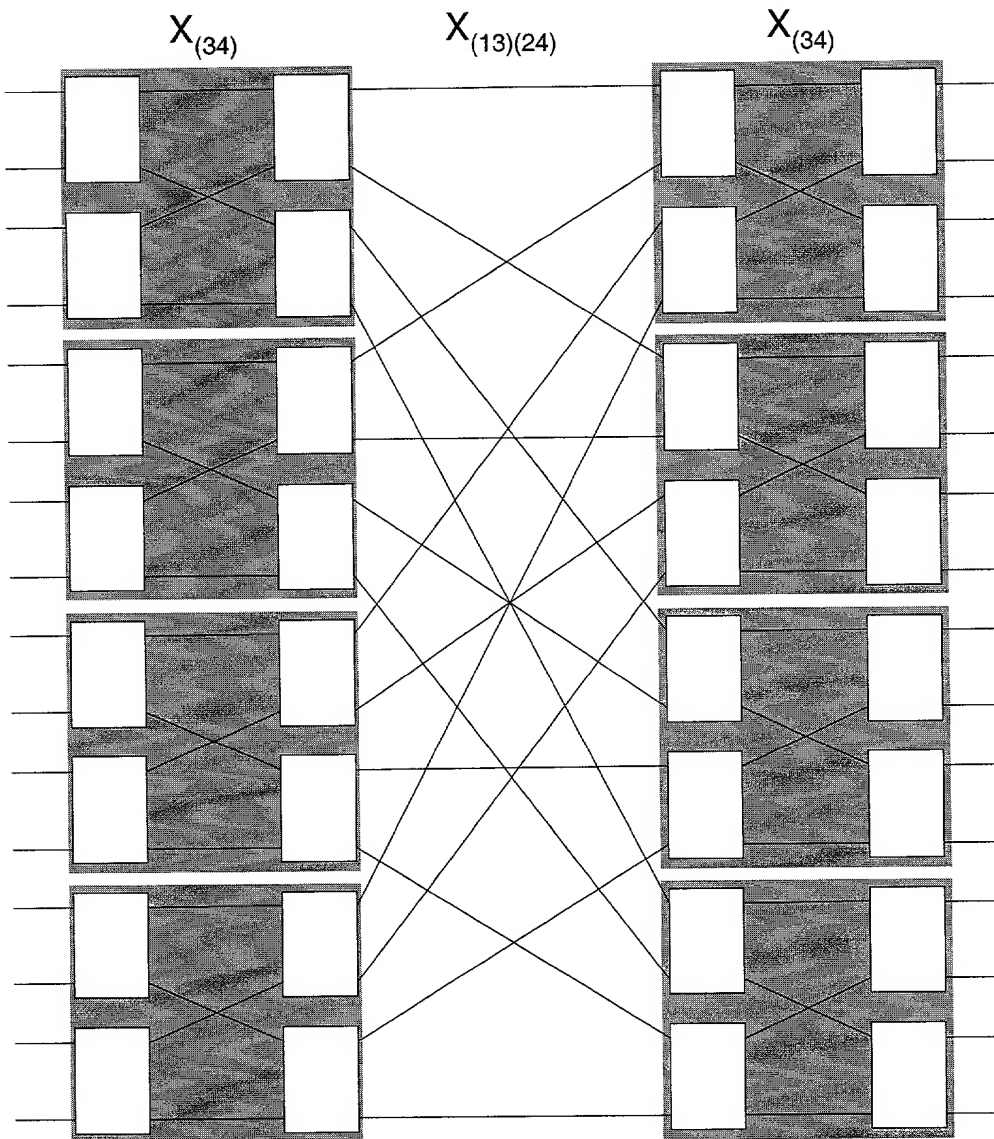


FIG. 51

5200

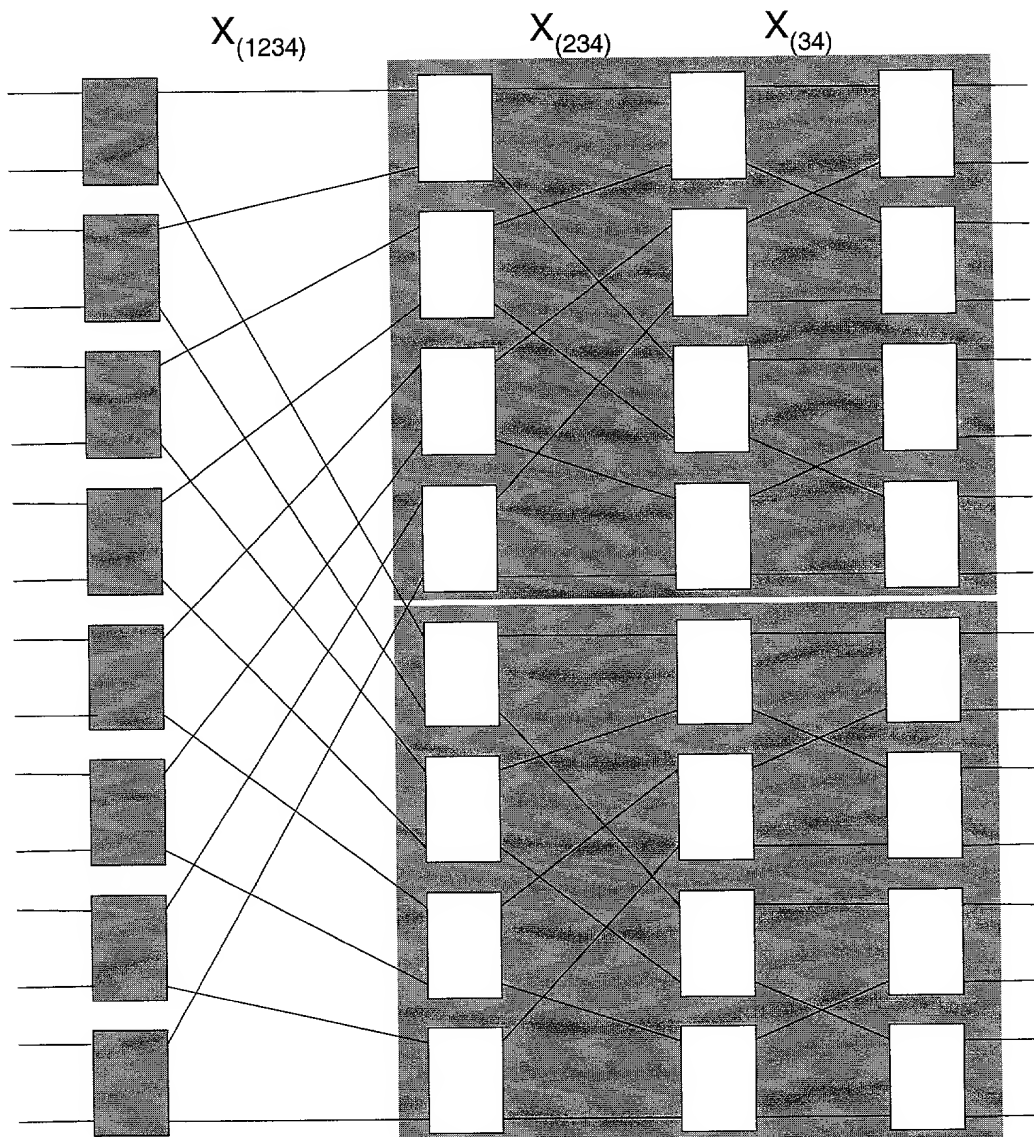
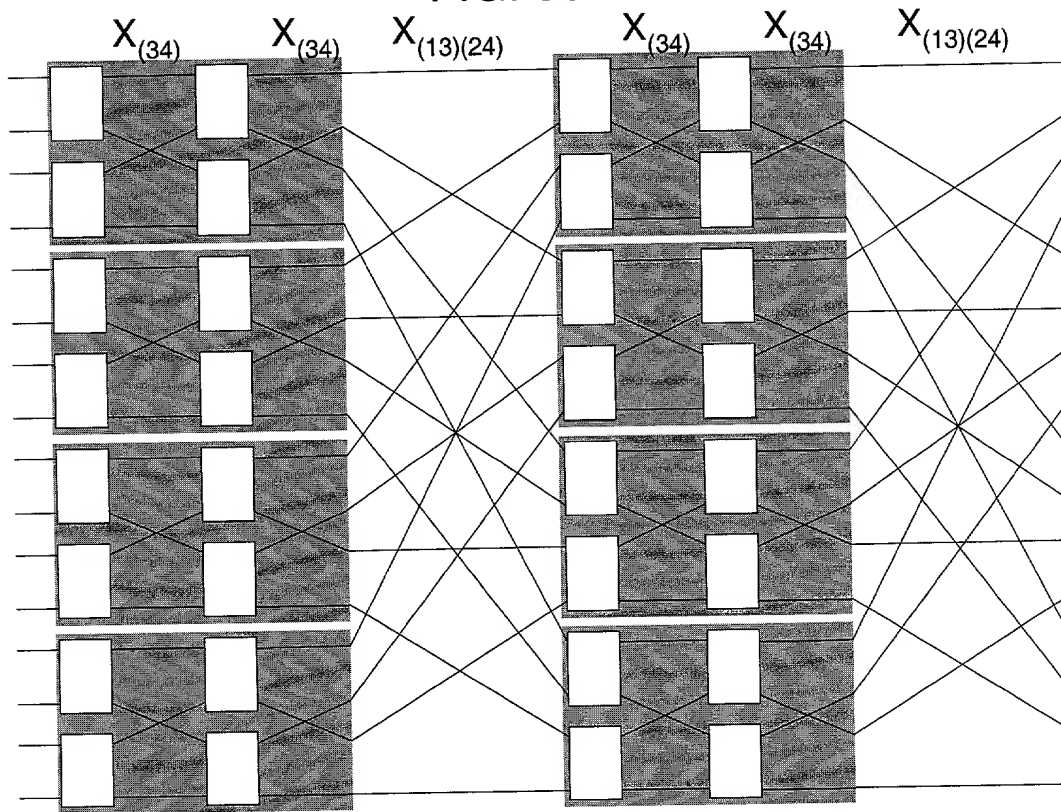
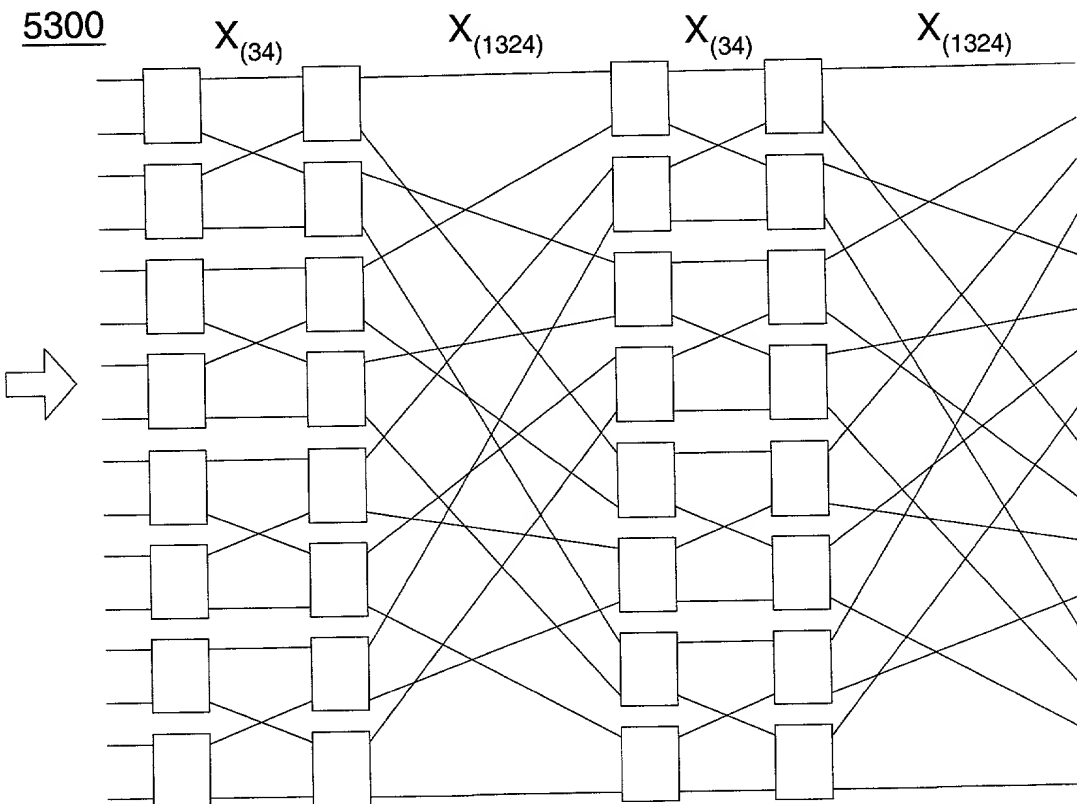


FIG. 52

FIG. 53



5300



5400

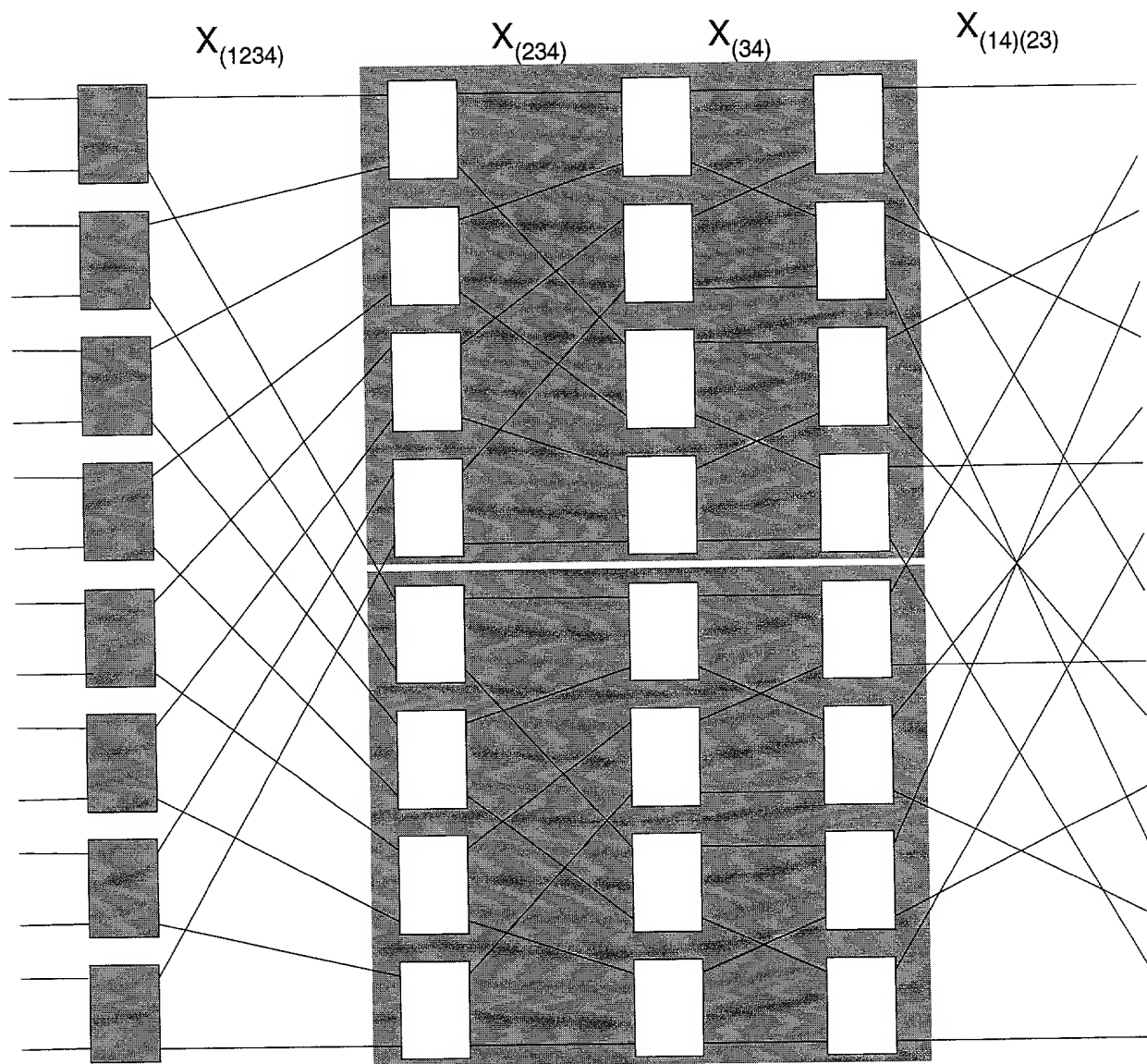


FIG. 54

5500

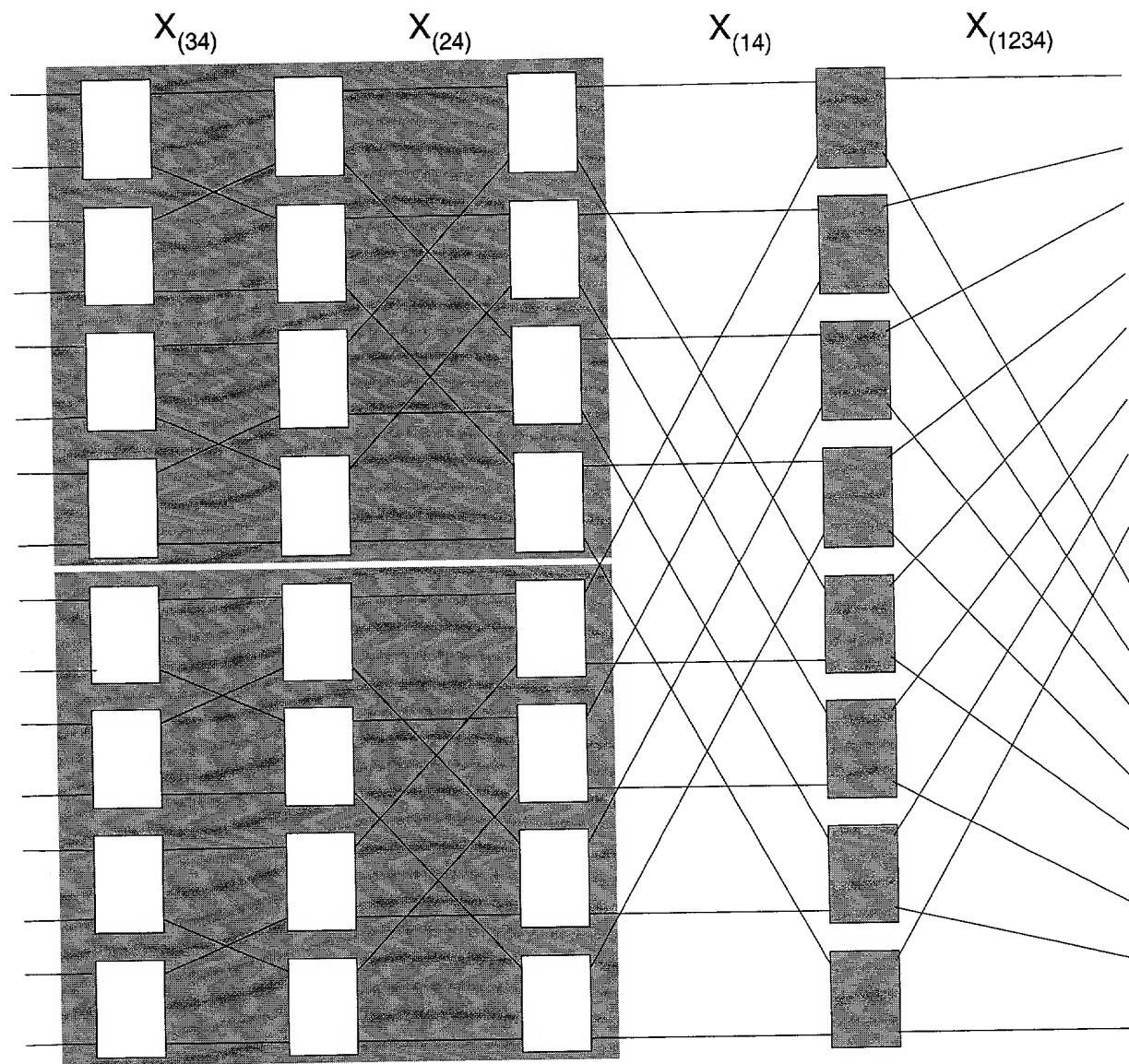


FIG. 55

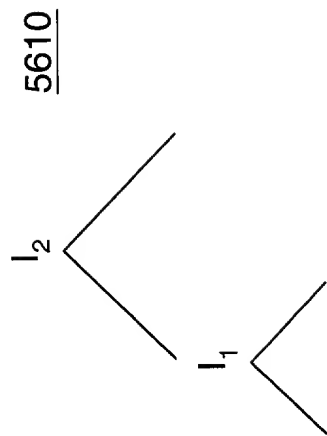


FIG. 56A

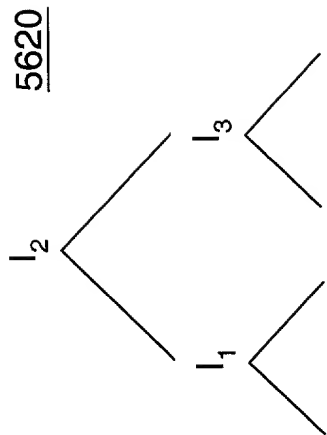


FIG. 56B

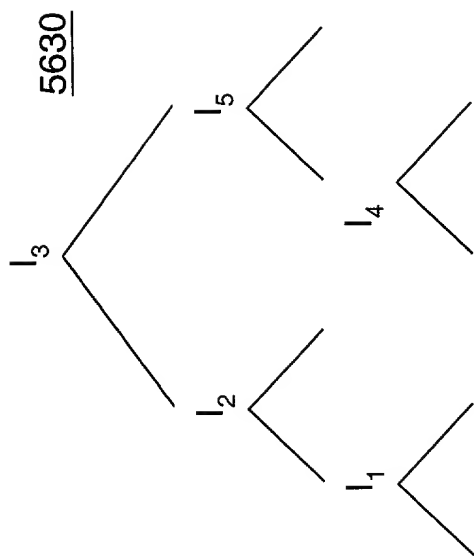


FIG. 56C

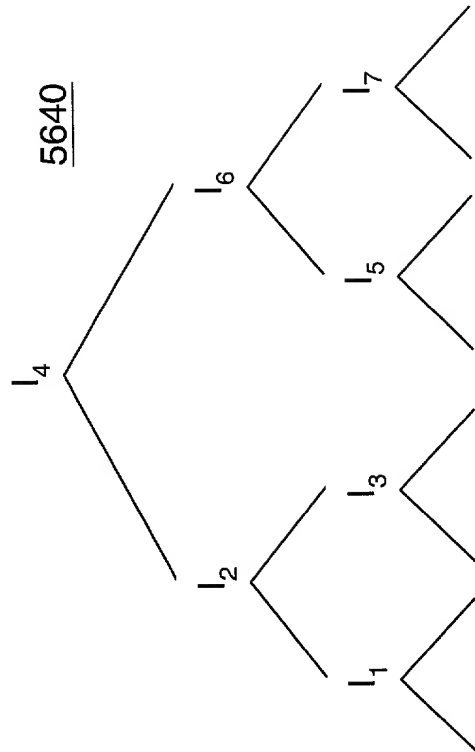


FIG. 56D

FIG. 57

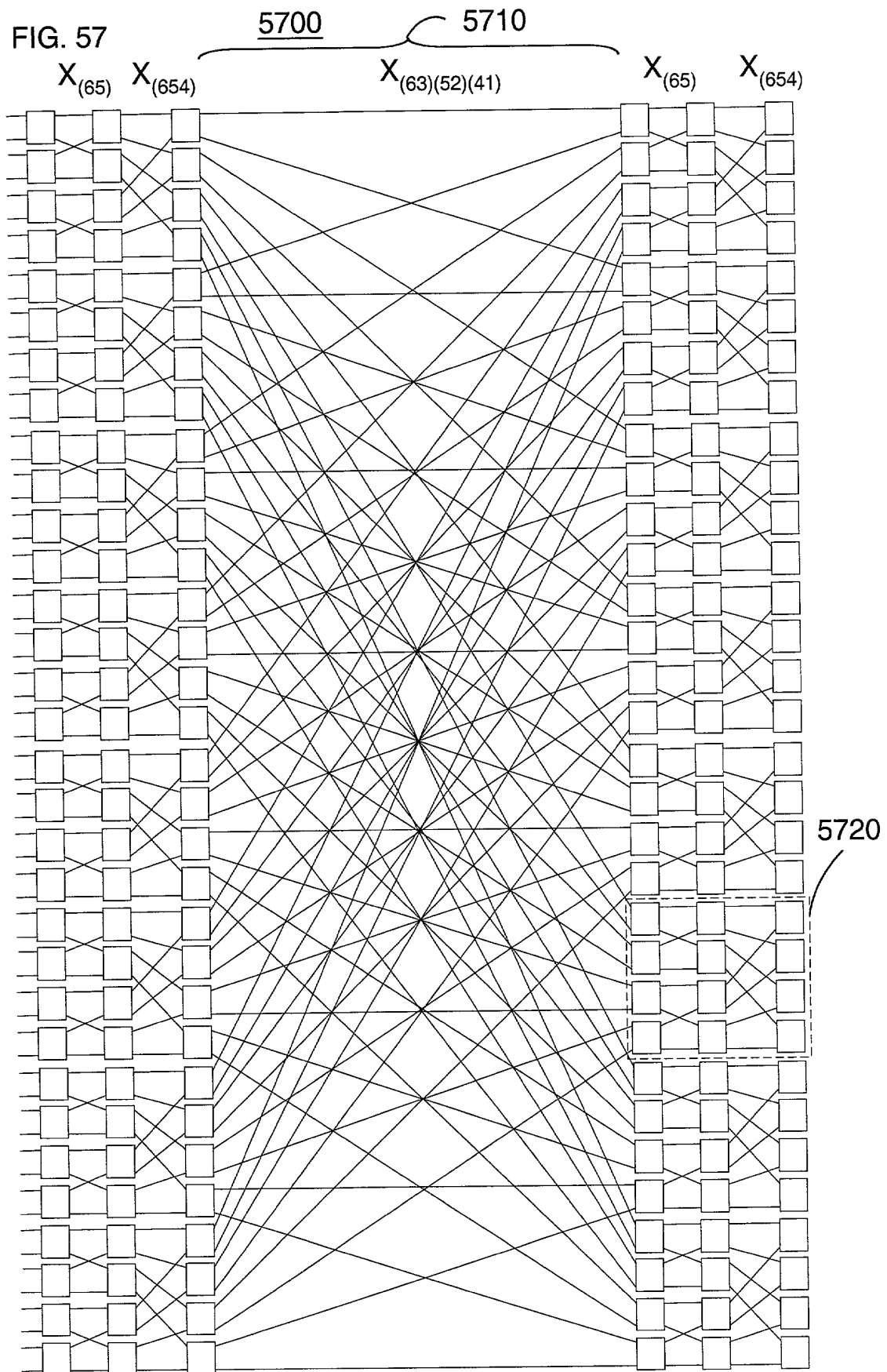


FIG. 58

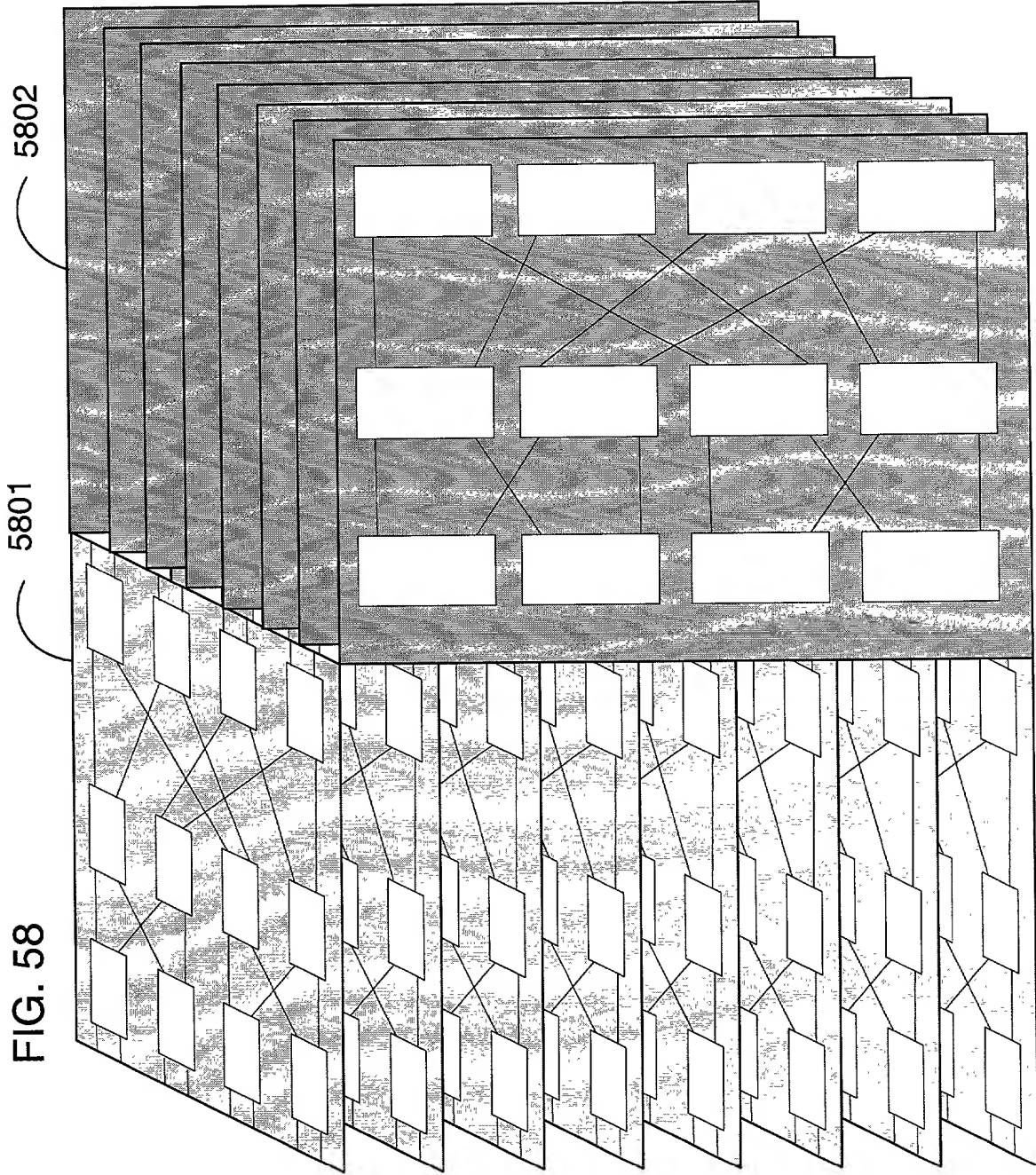
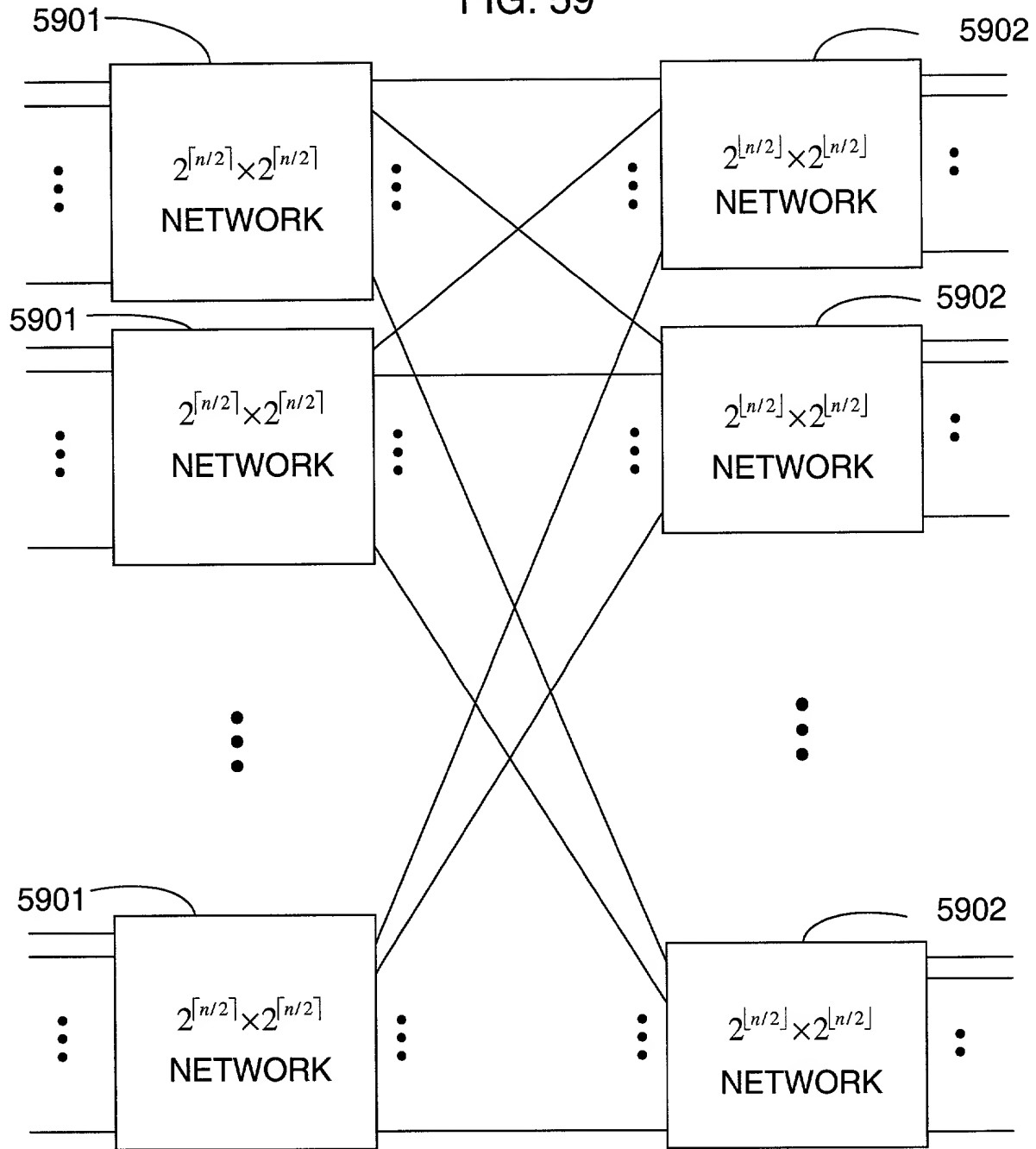


FIG. 59



6000

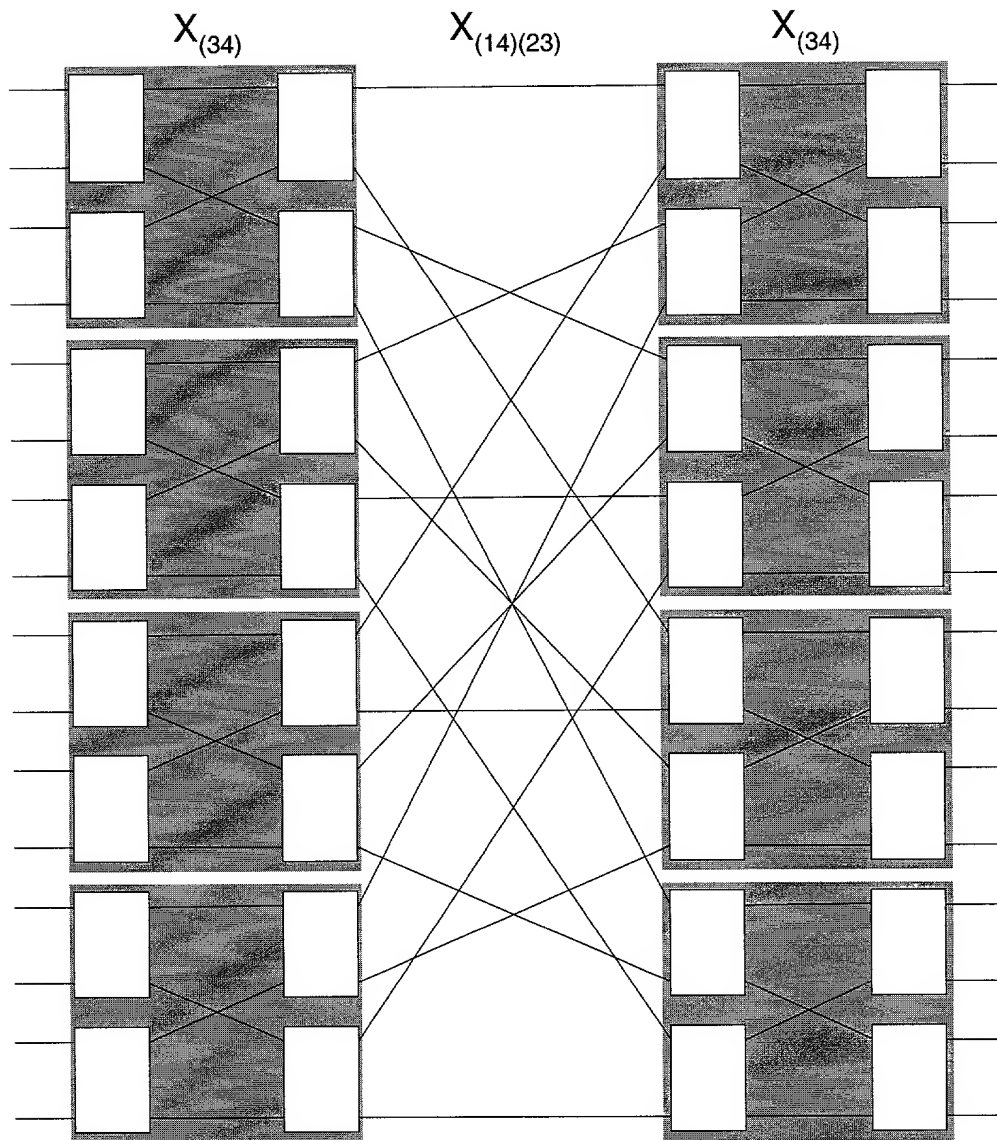
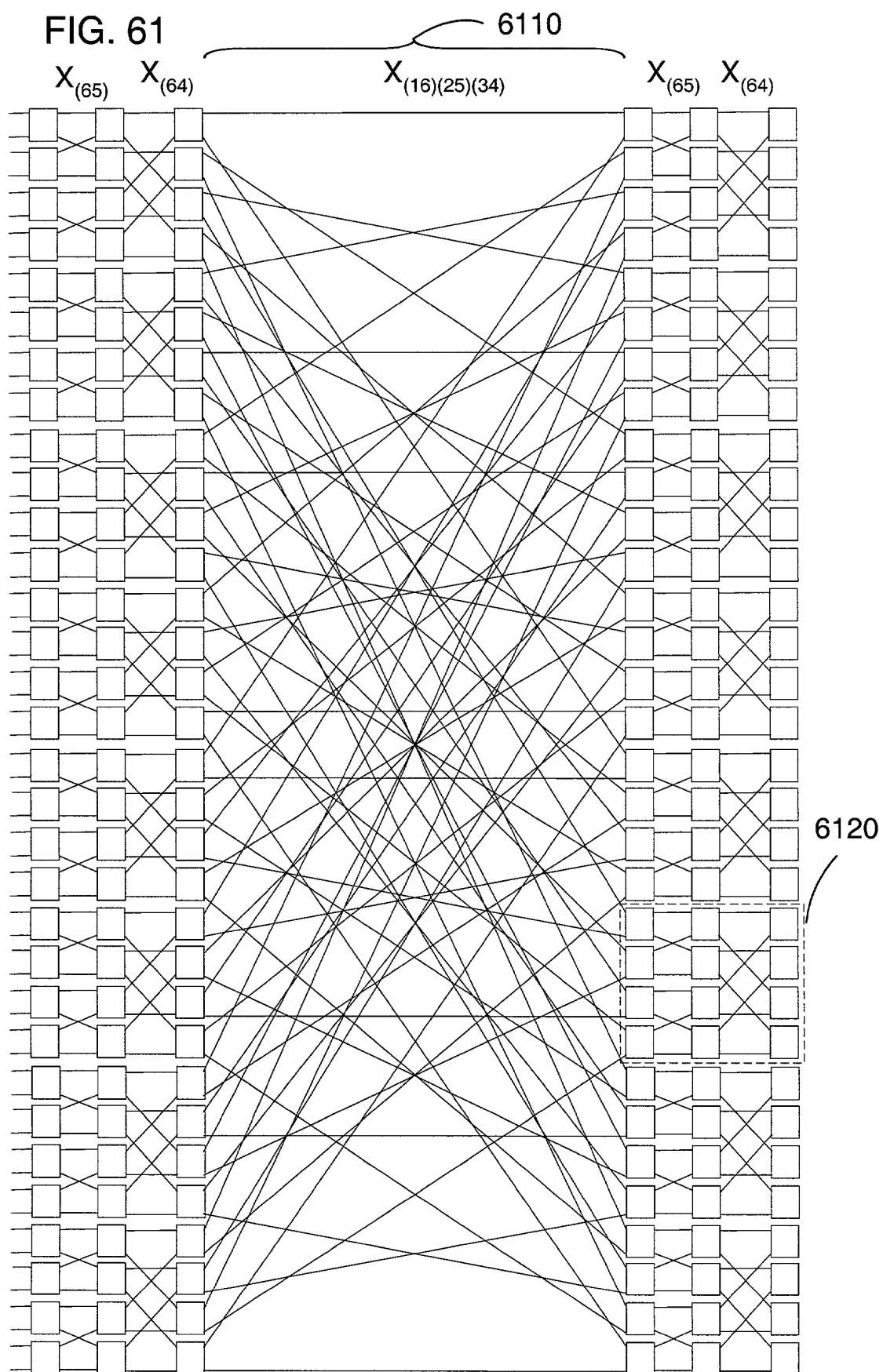


FIG. 60

FIG. 61



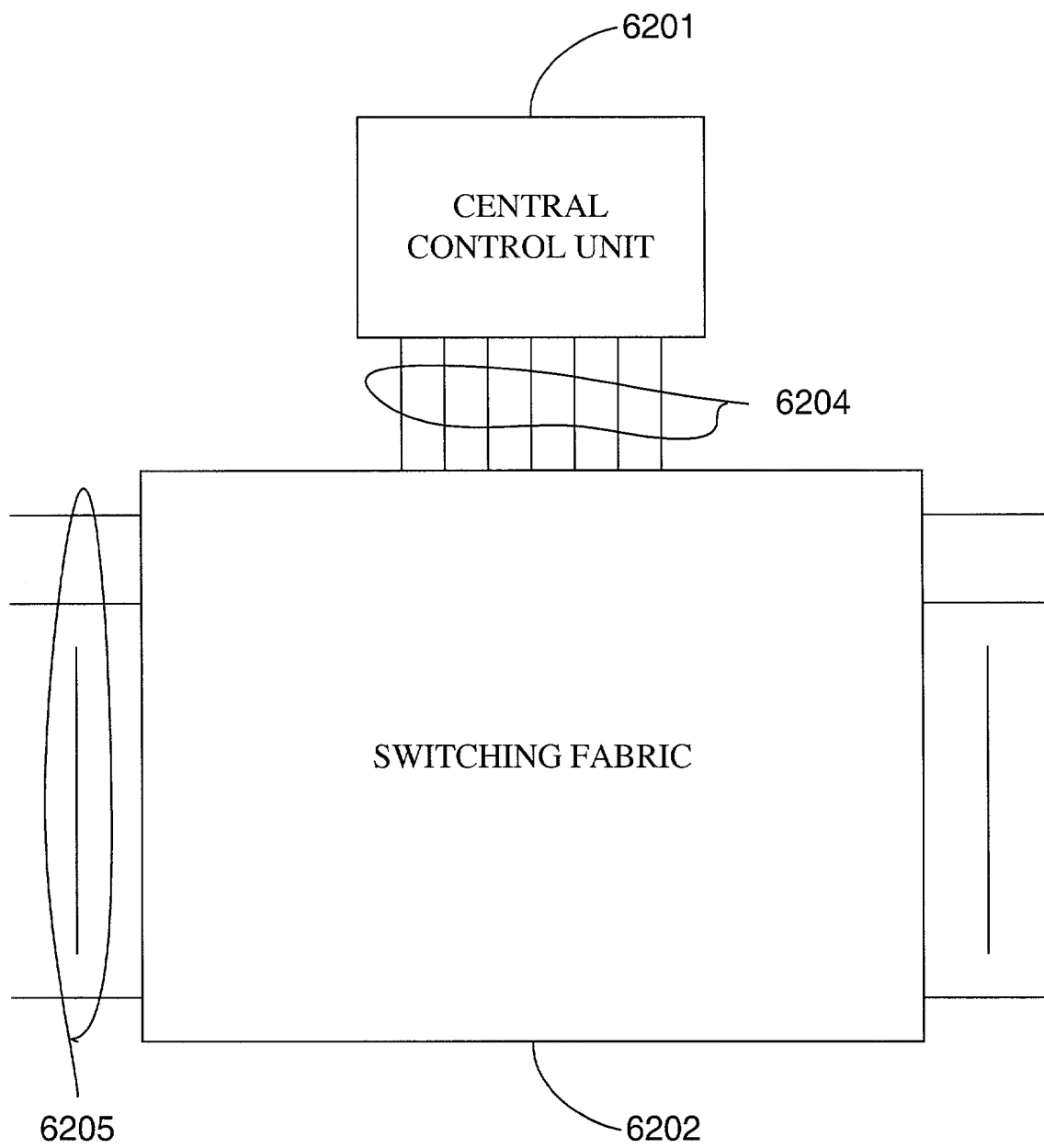


FIG. 62A

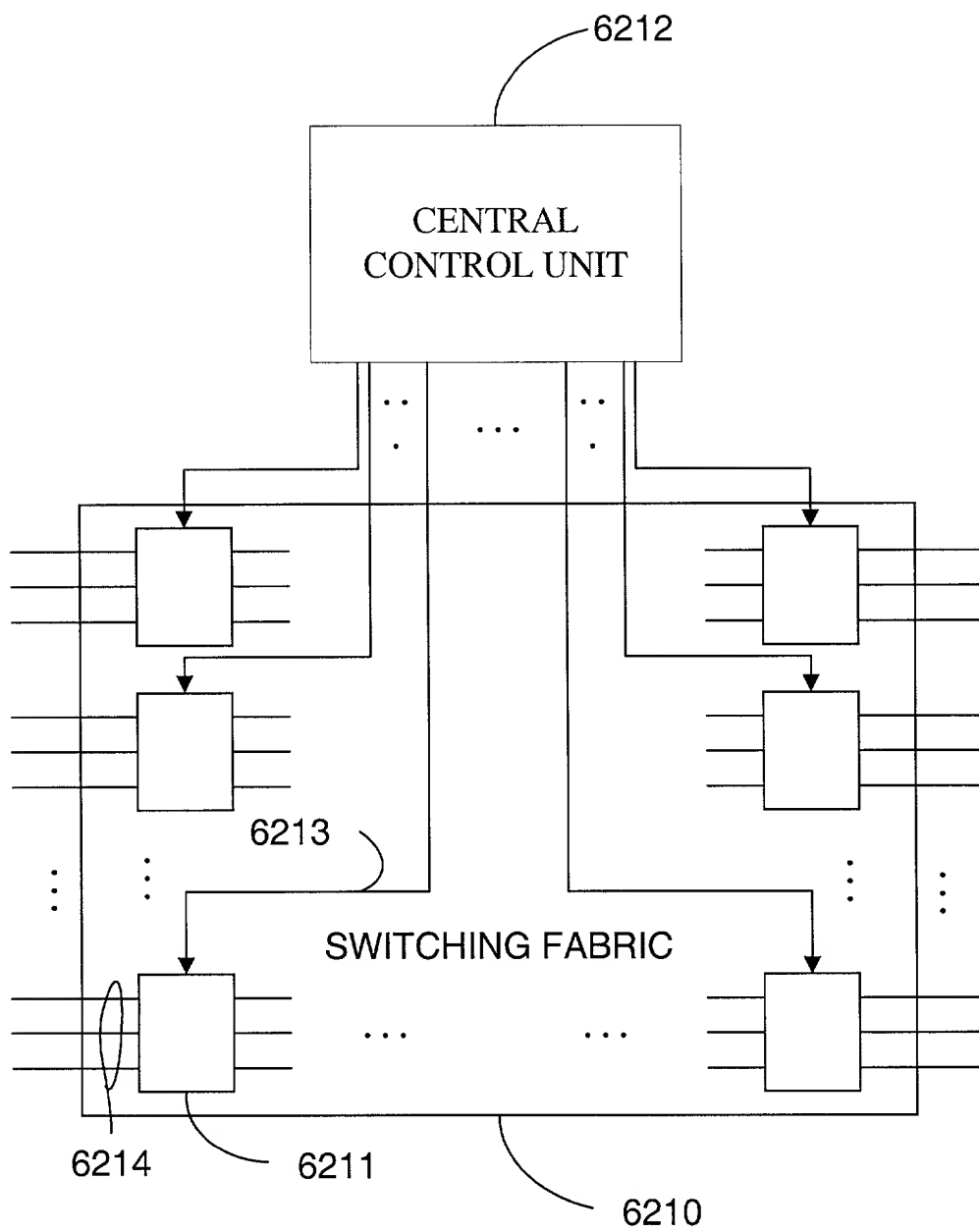


FIG. 62B

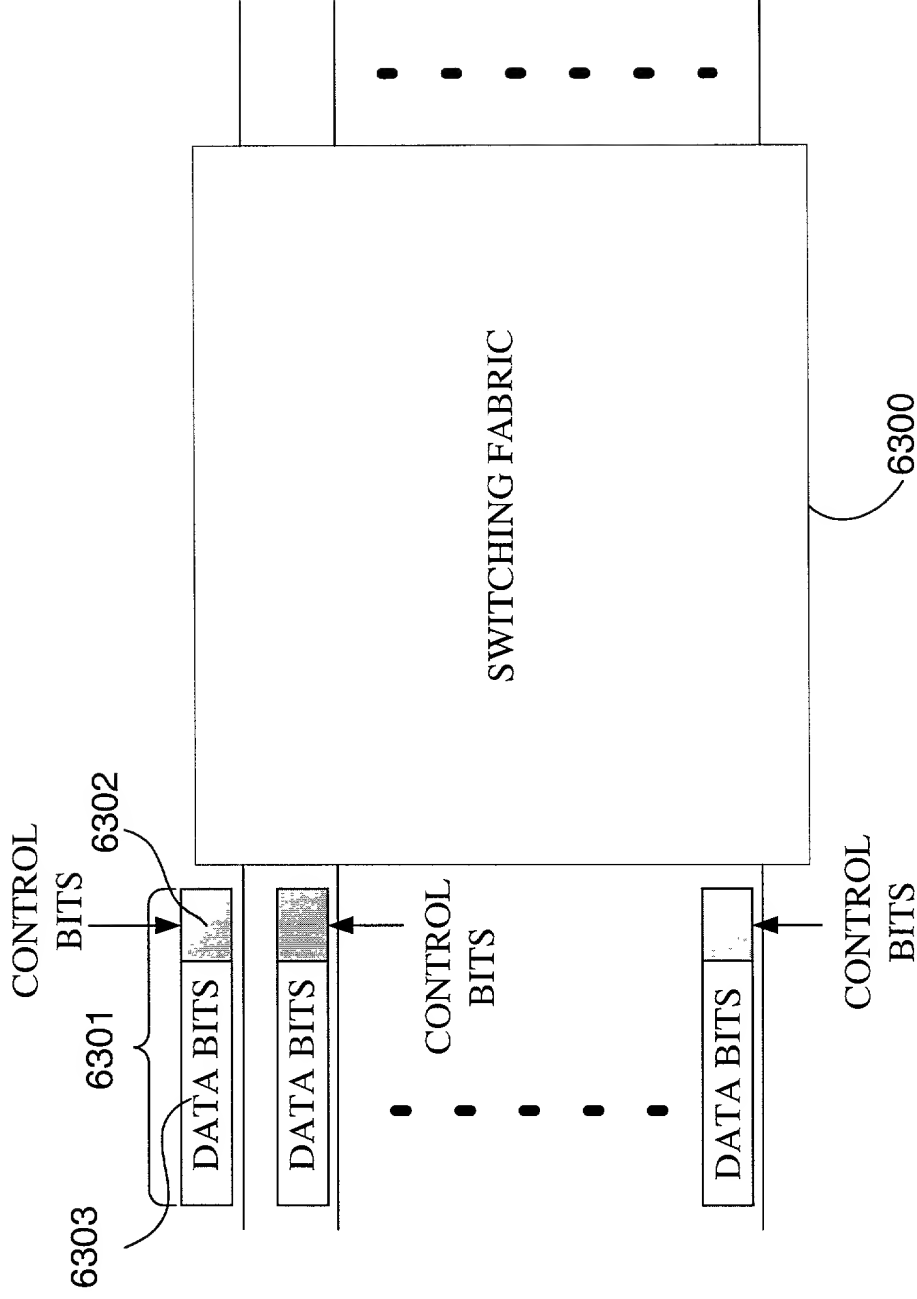


FIG. 63A

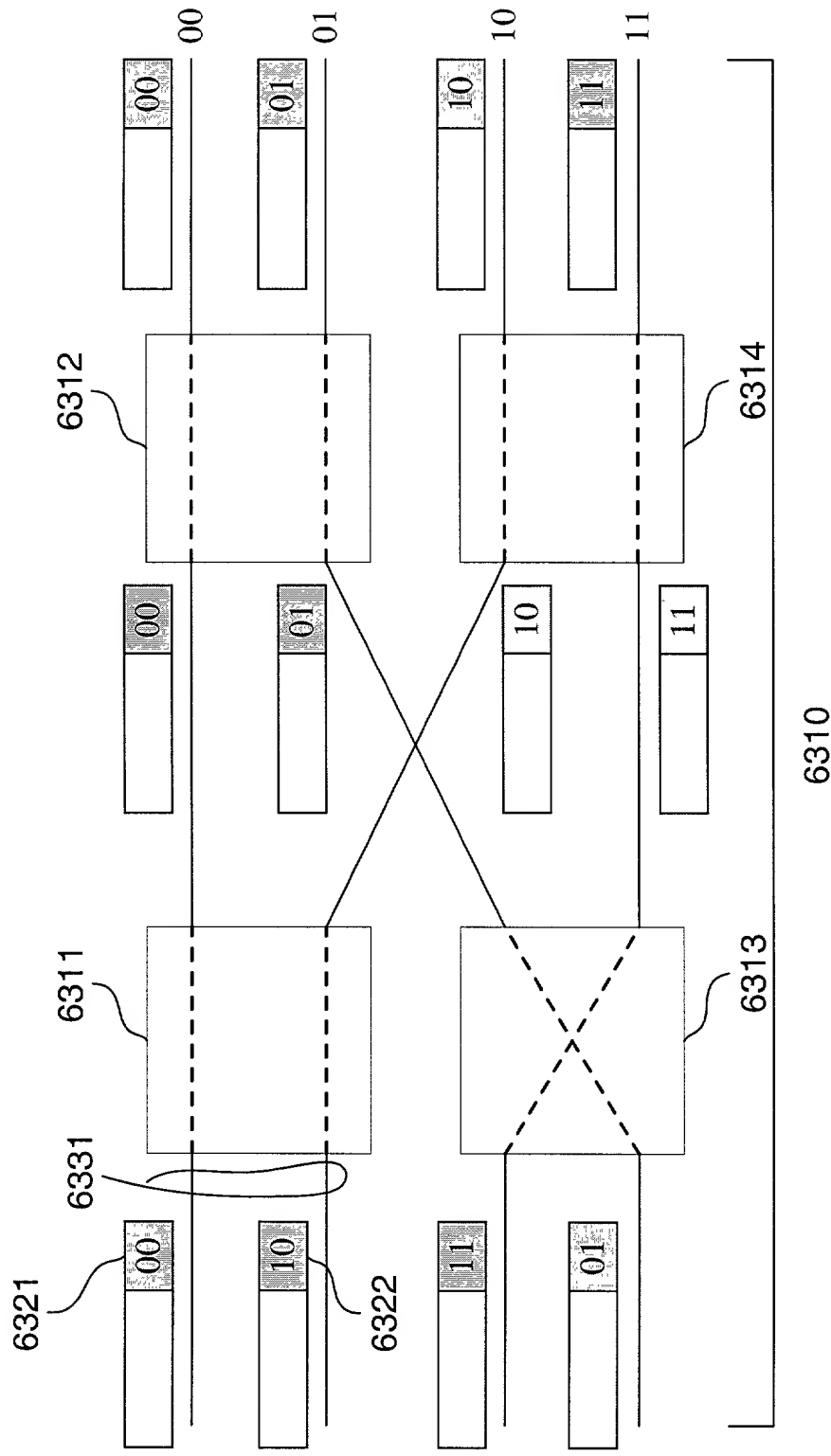


FIG. 63B

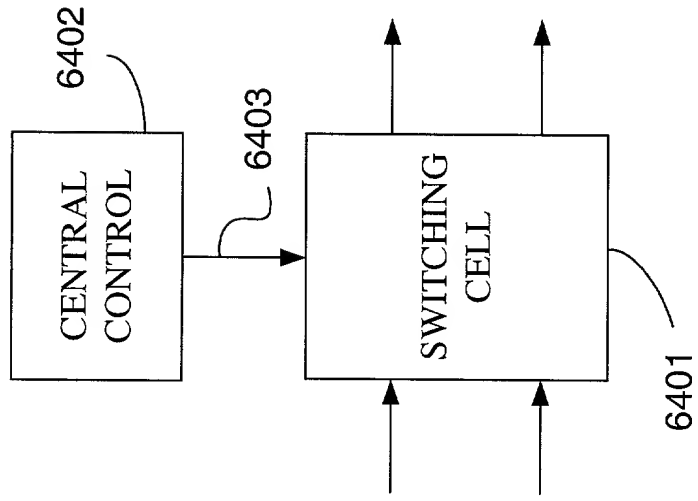


FIG. 64A

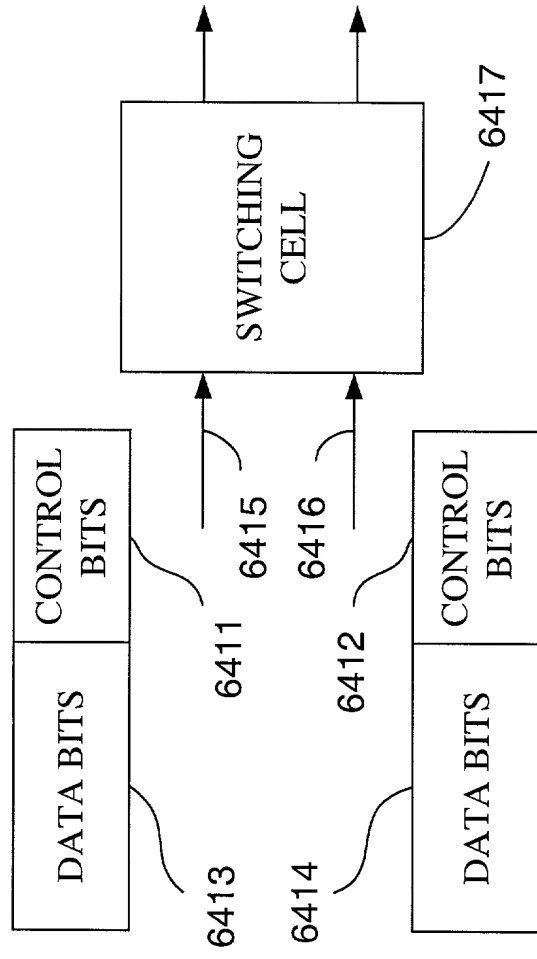


FIG. 64B

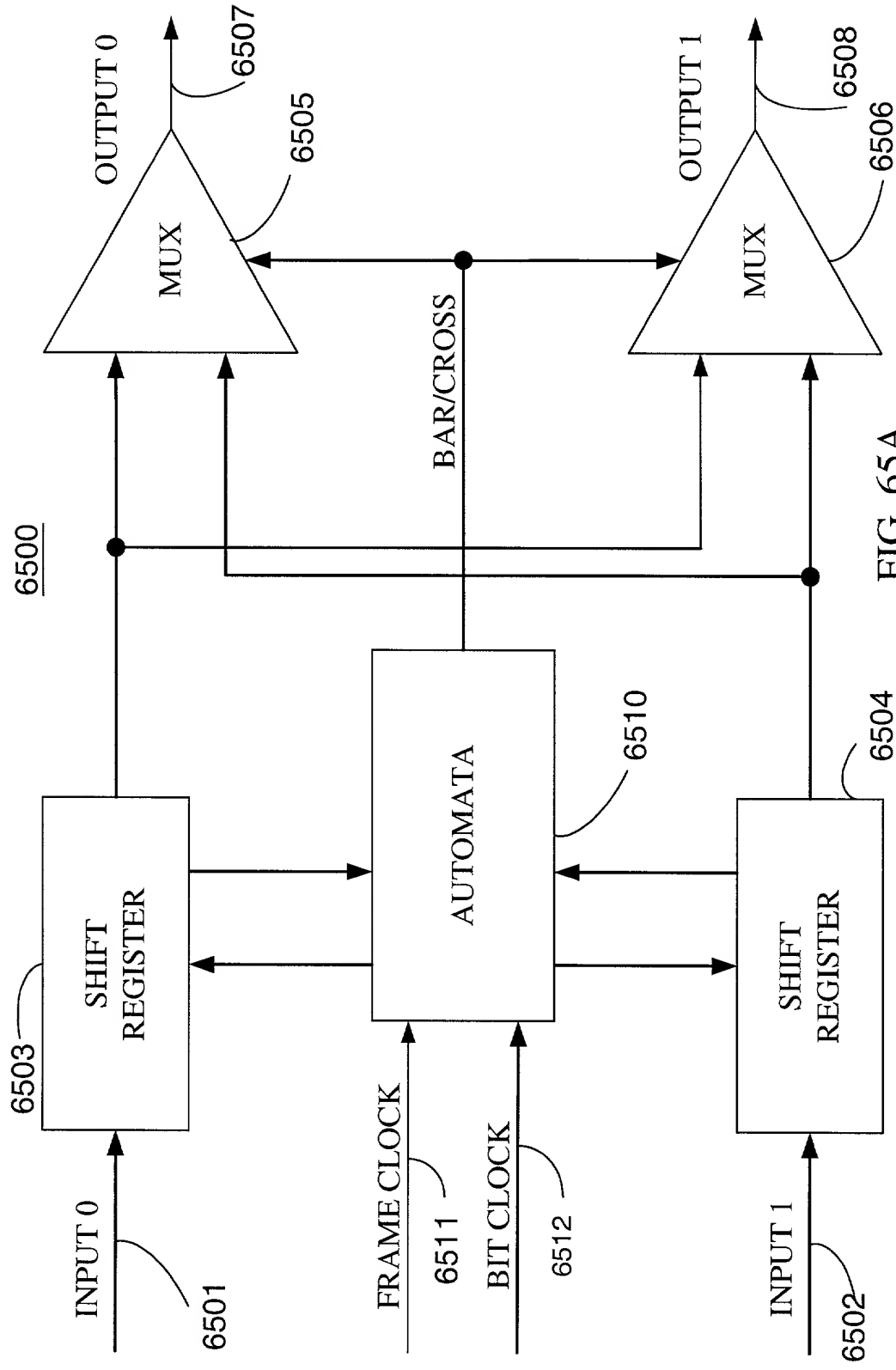


FIG. 65A

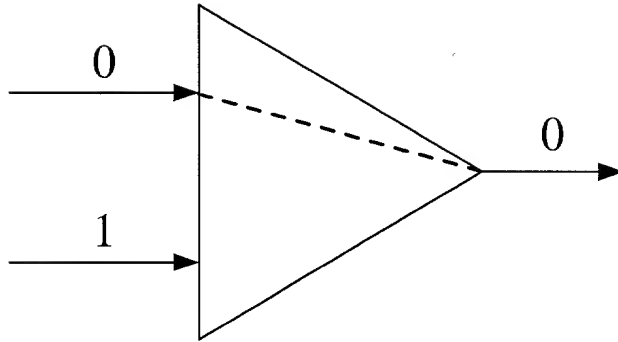


FIG. 65B

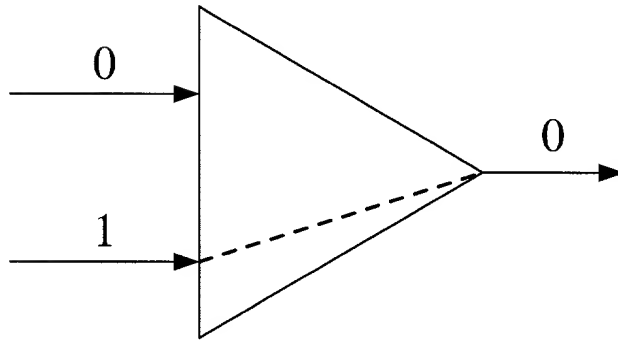


FIG. 65C

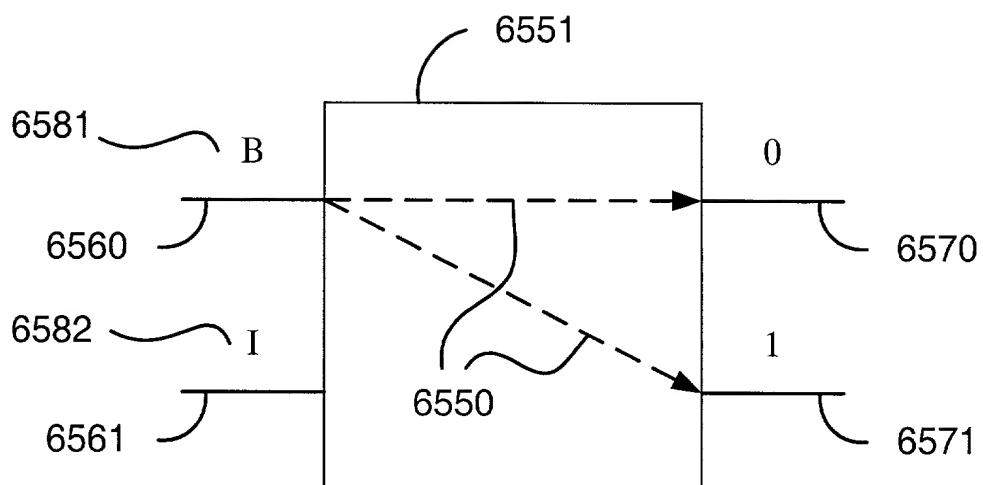


FIG. 65D

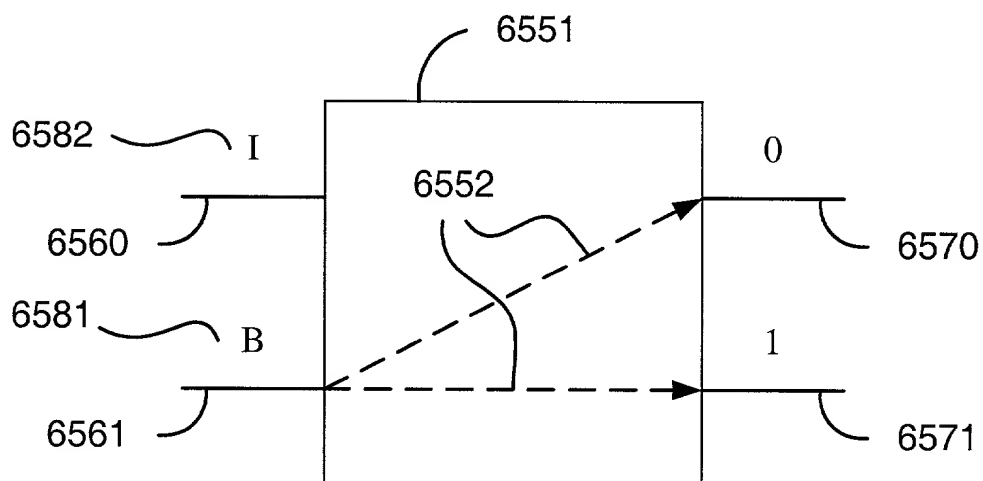


FIG. 65E

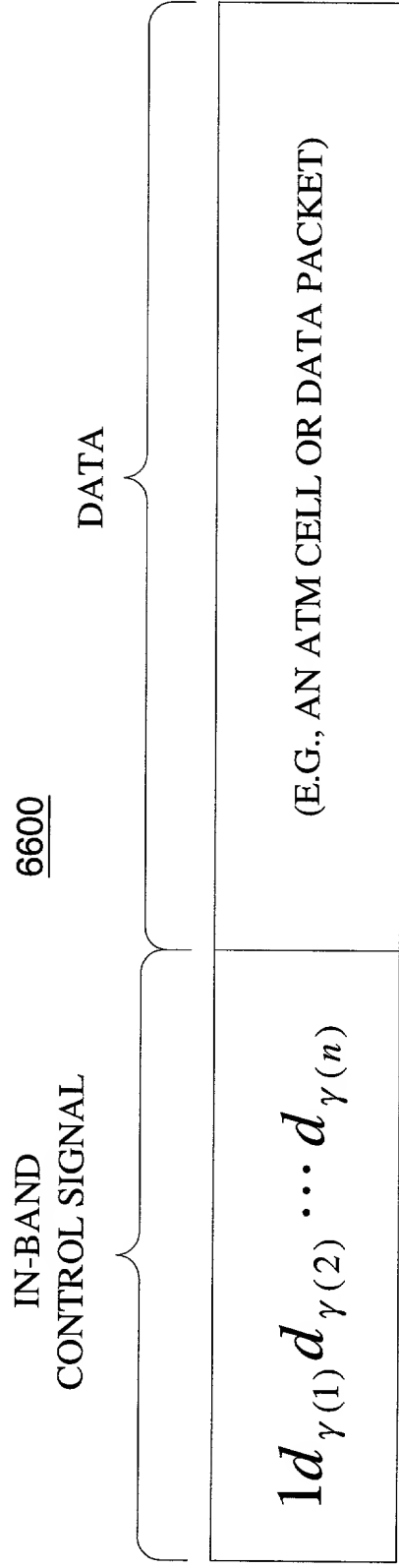


FIG. 66A

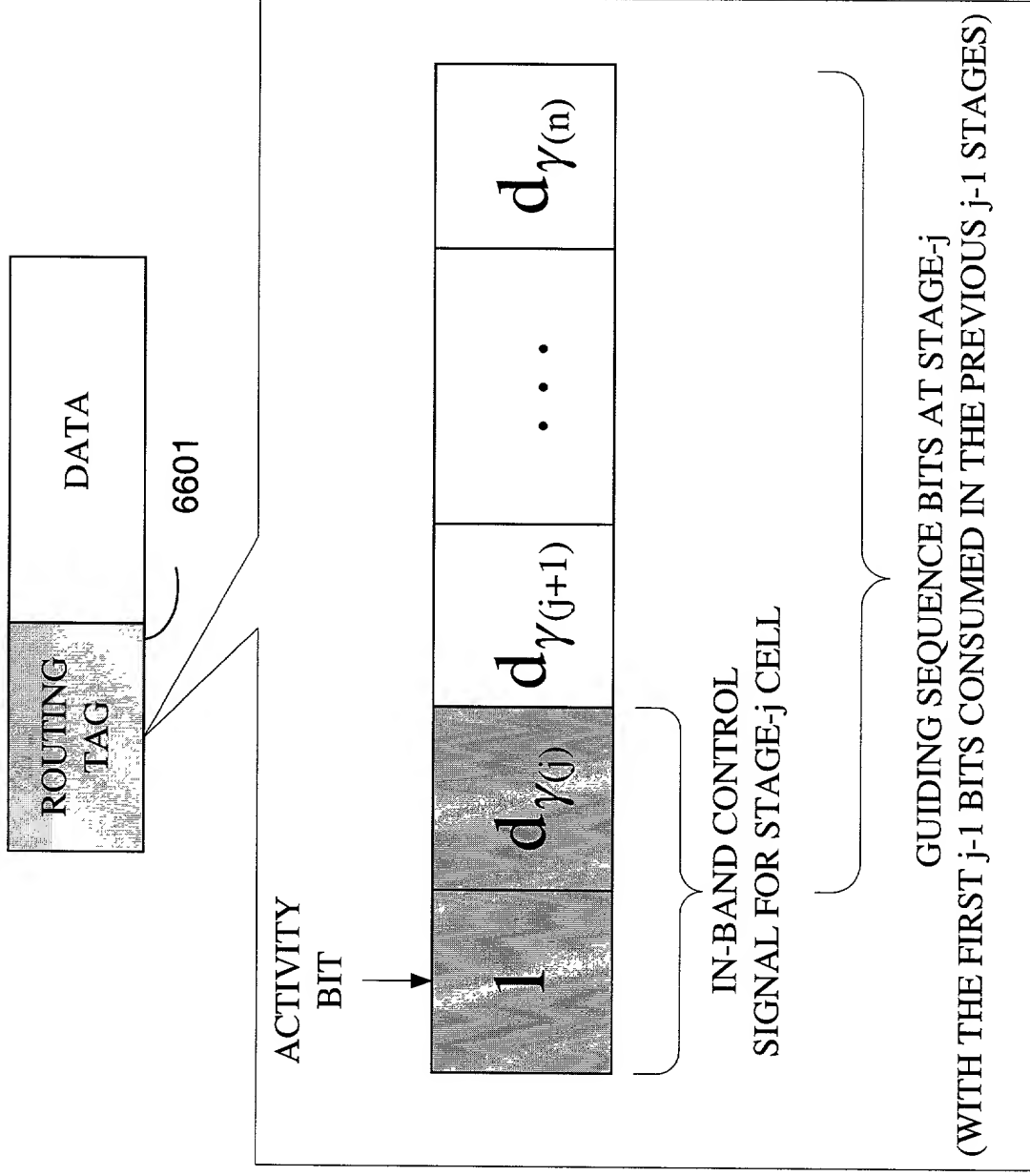


FIG. 66B

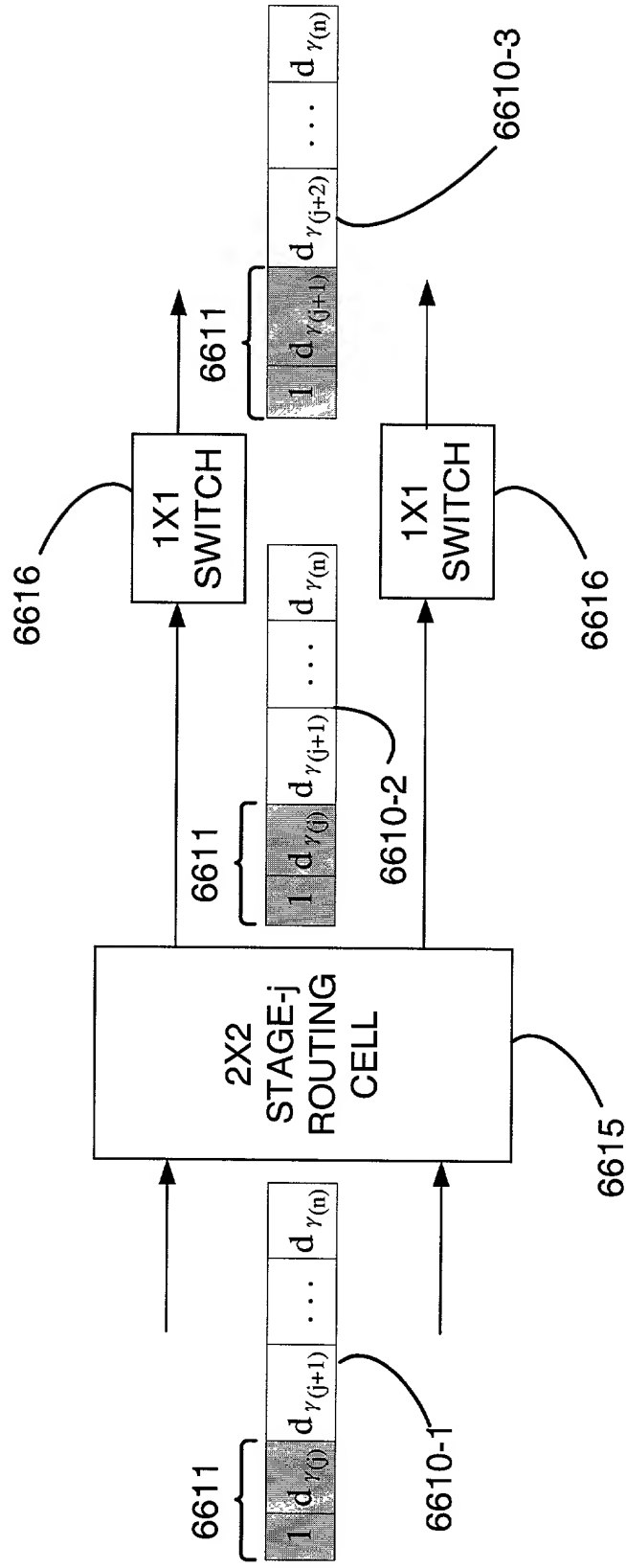


FIG. 66C

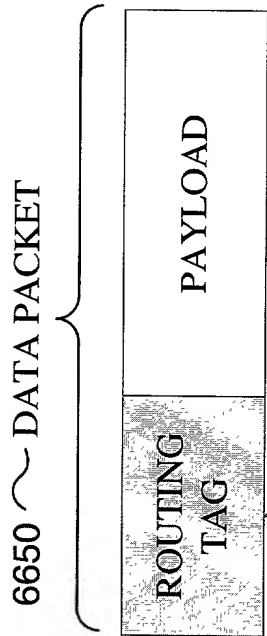
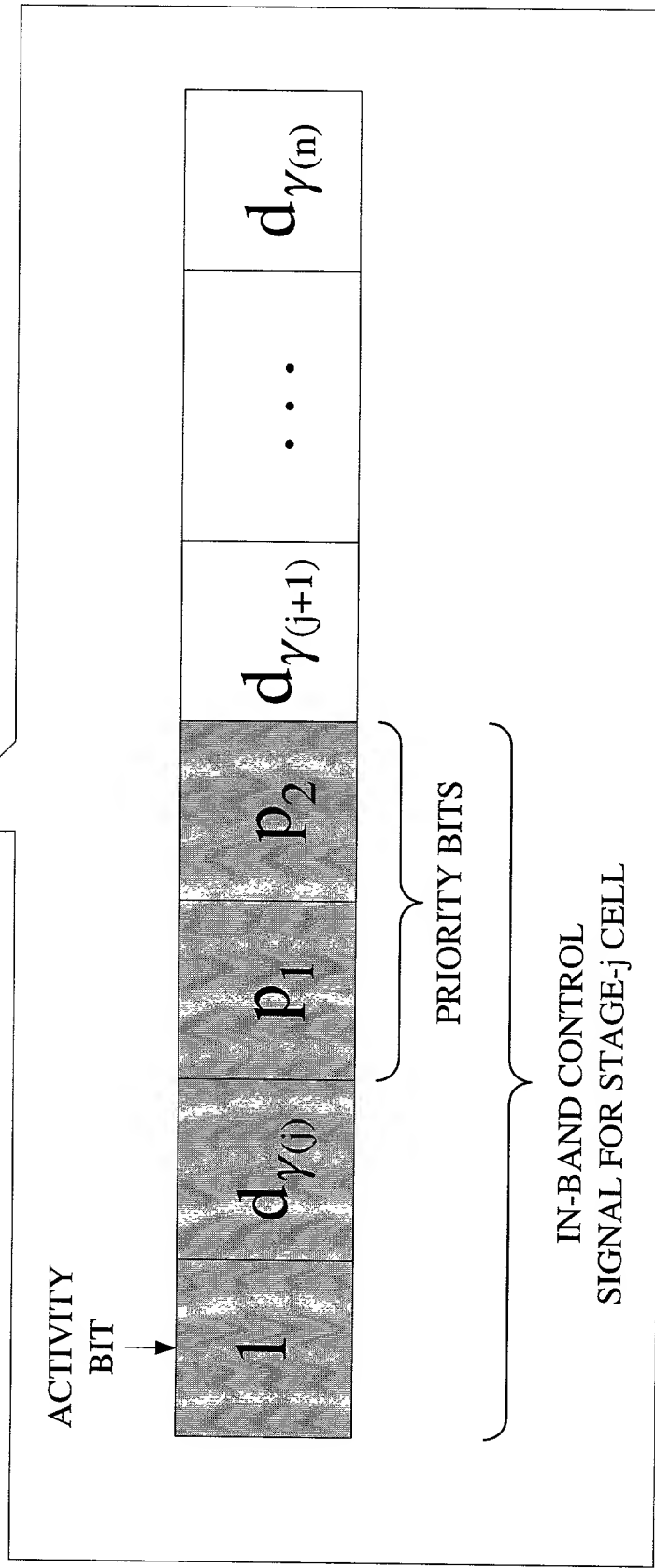


FIG. 66D



6700

FIG. 67A

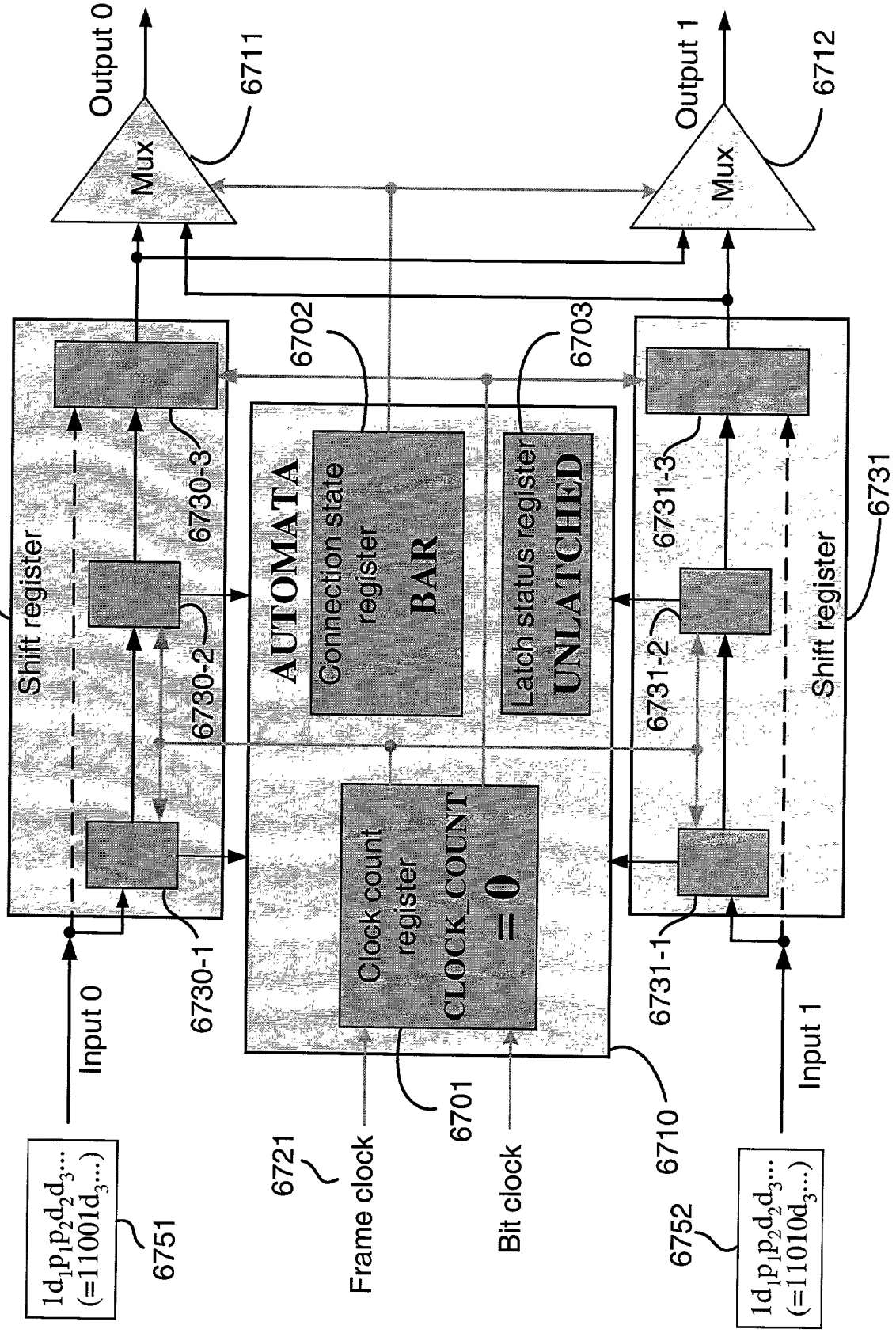


FIG. 67B

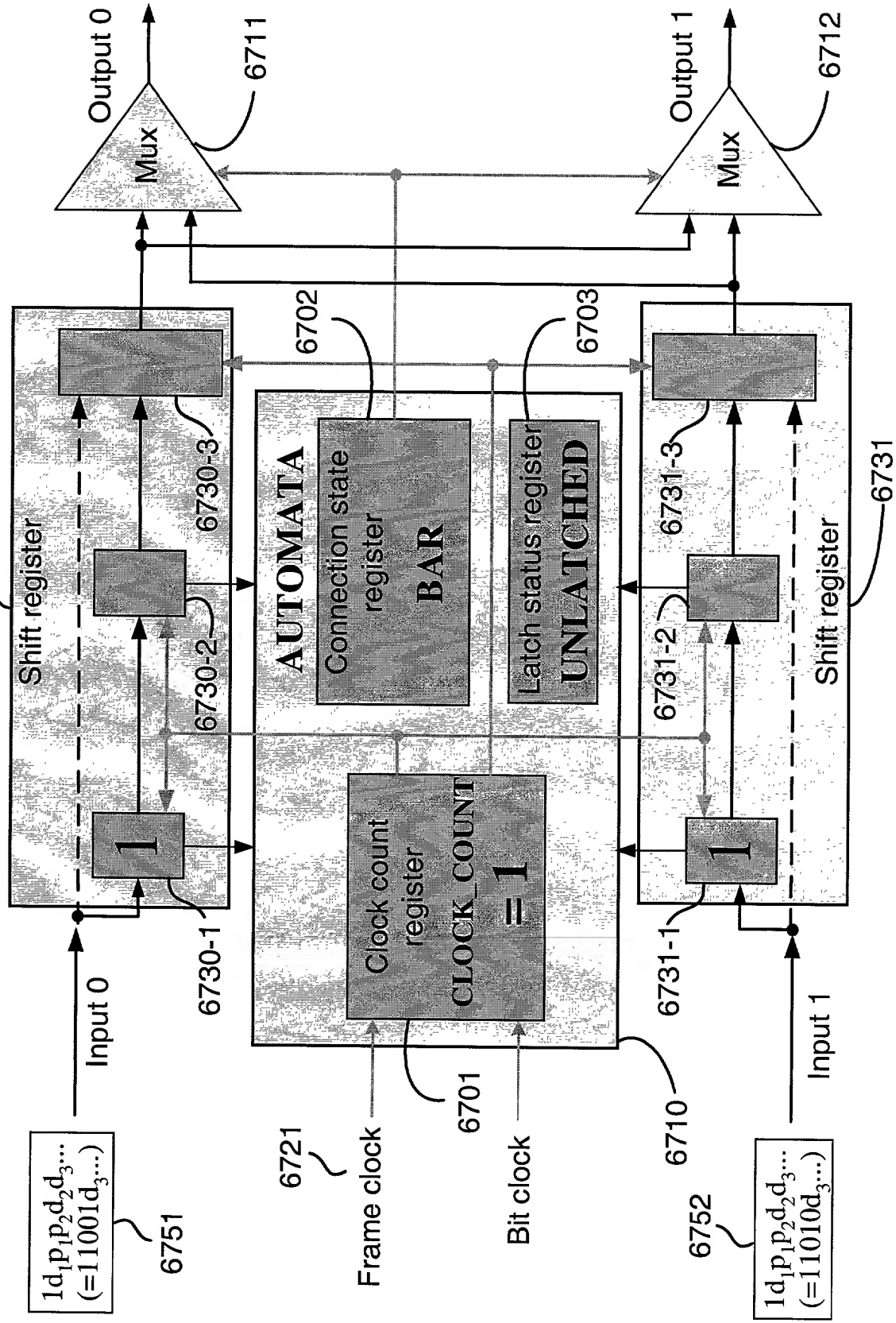


FIG. 67C

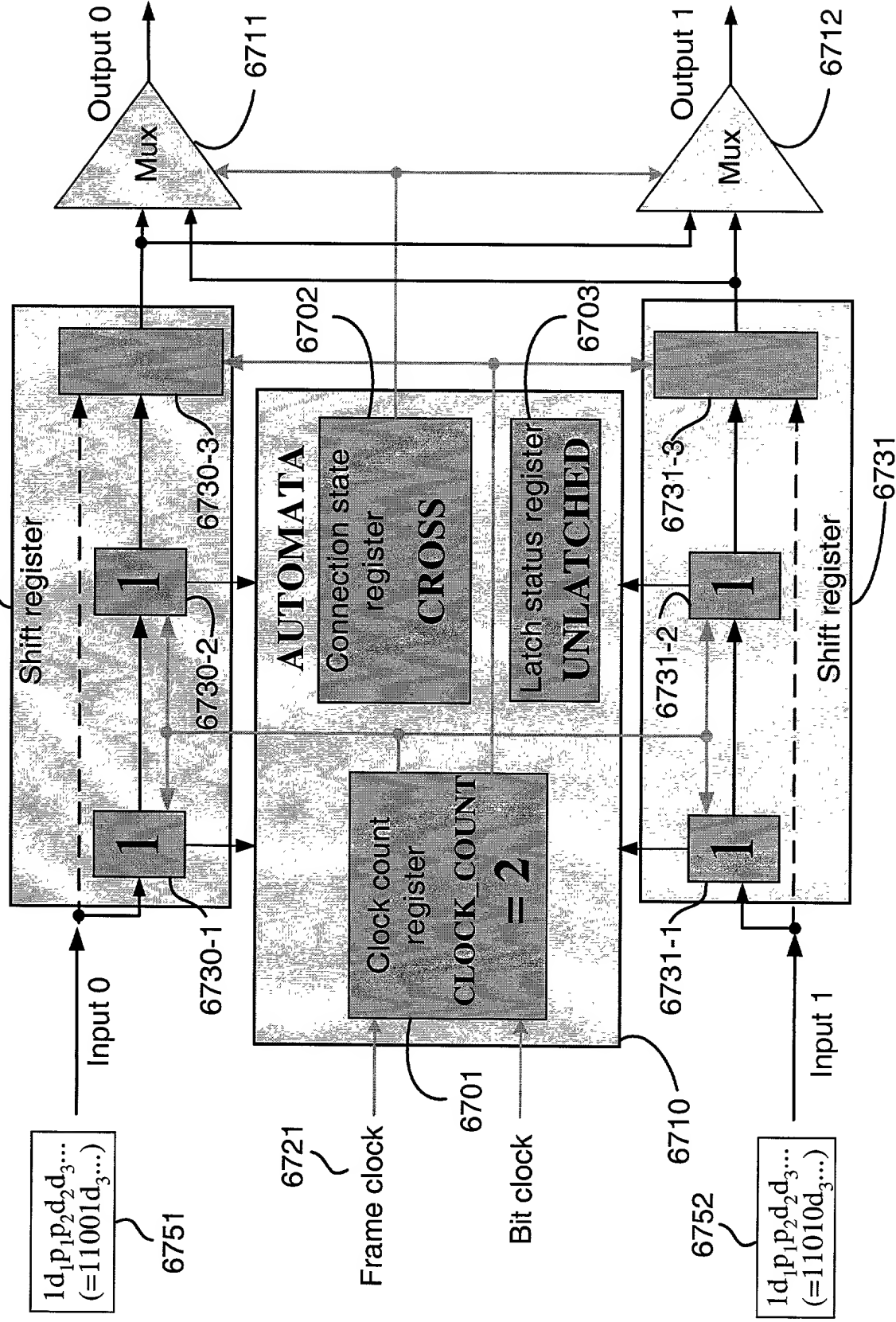


FIG. 67D

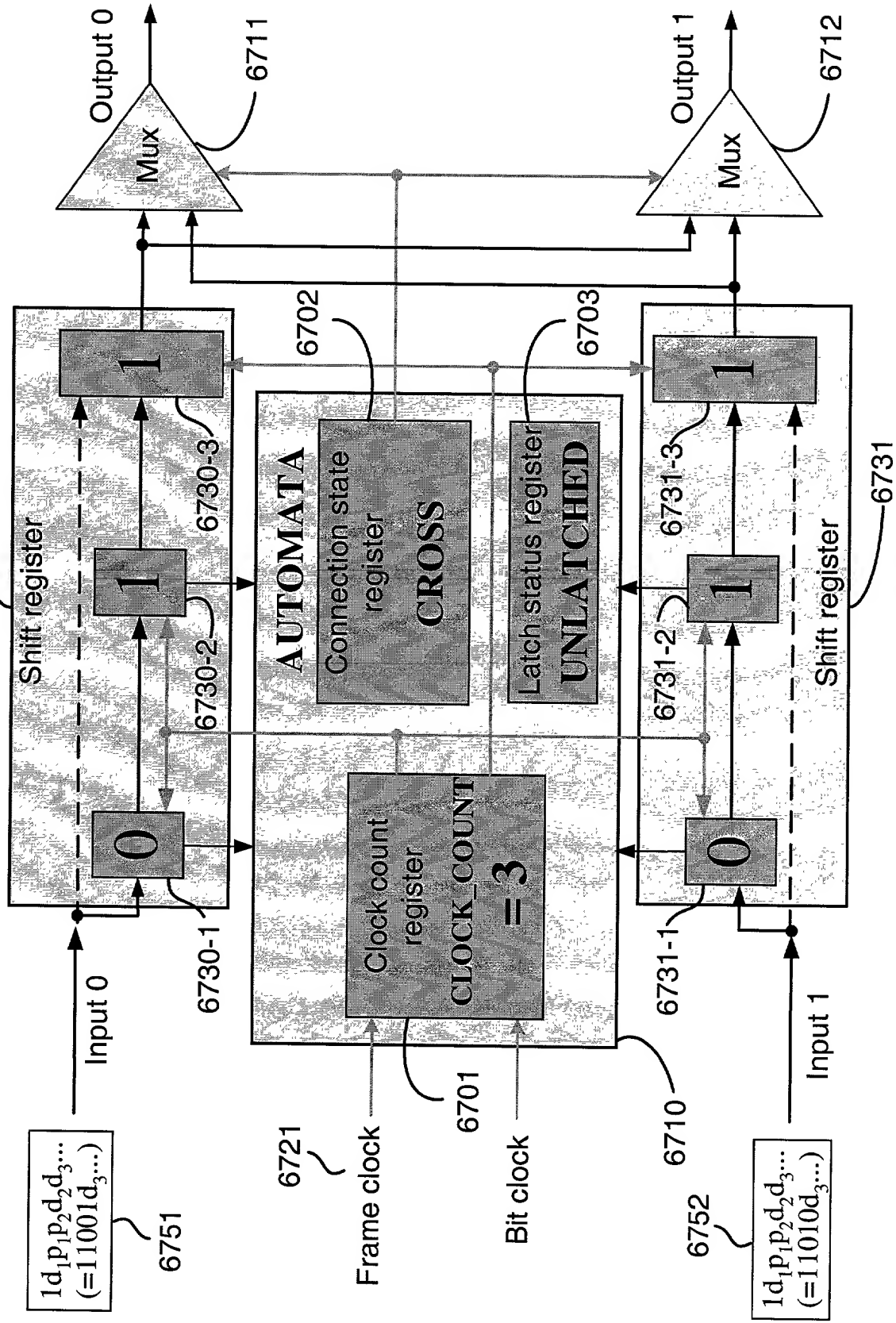


FIG. 67E

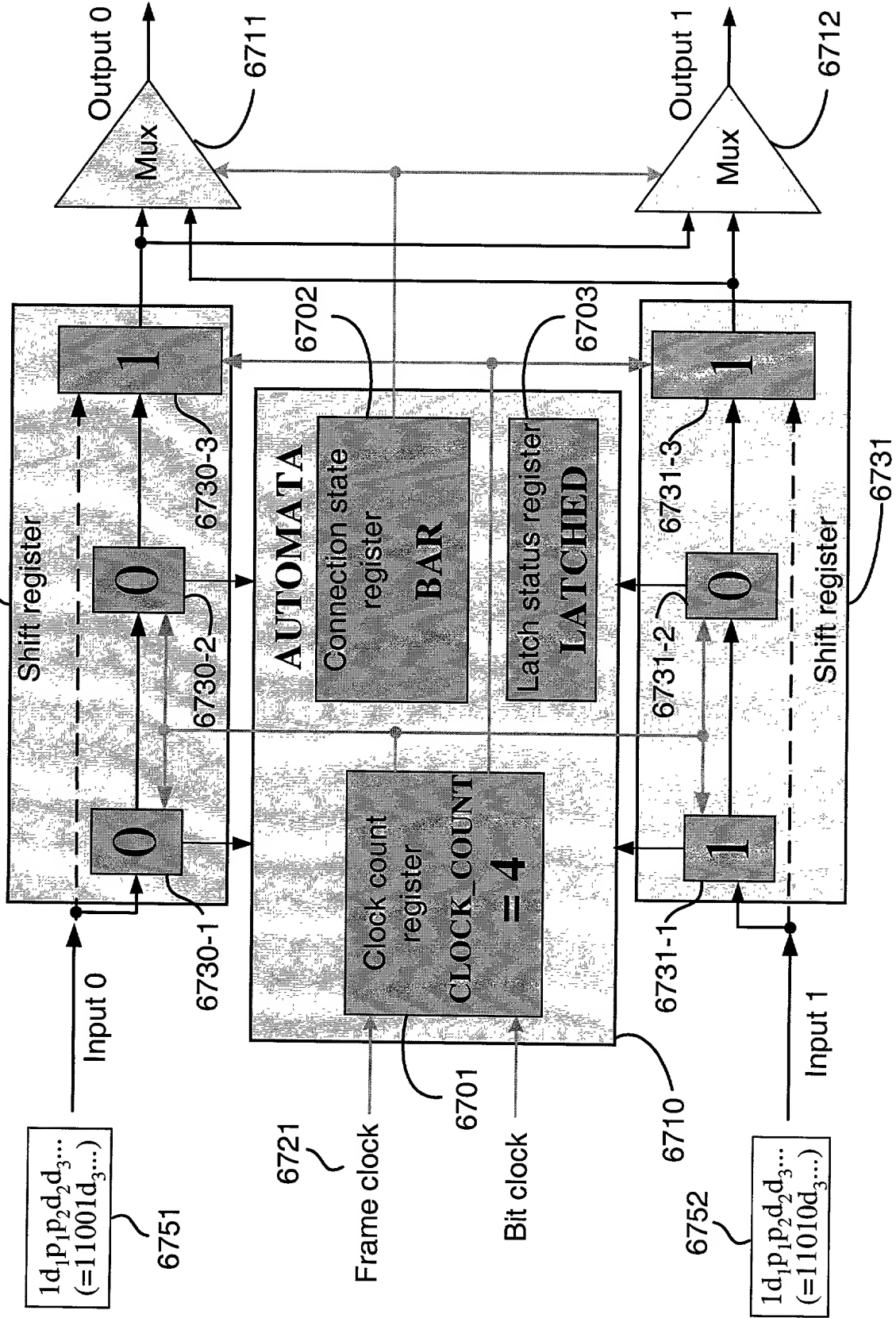
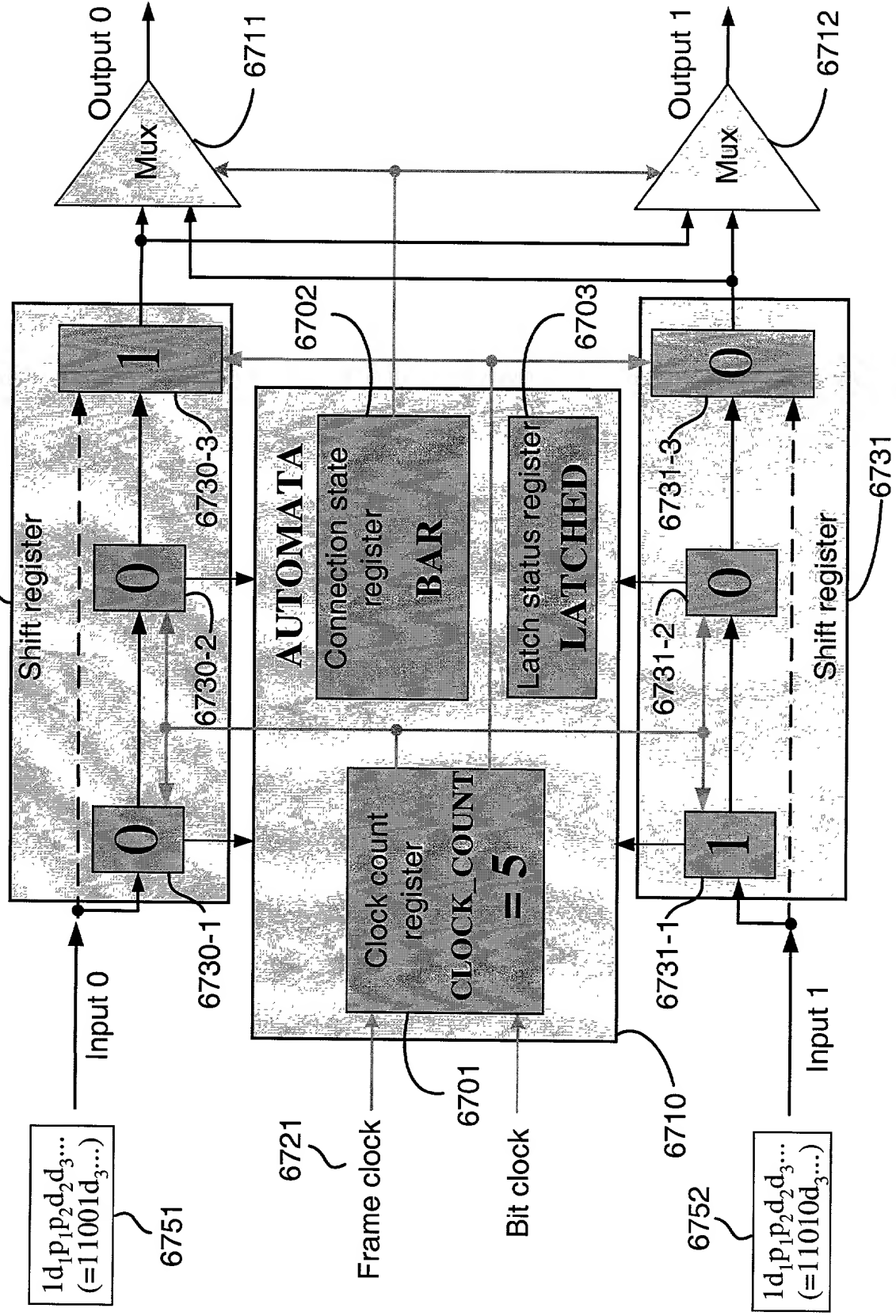


FIG. 67F



6800

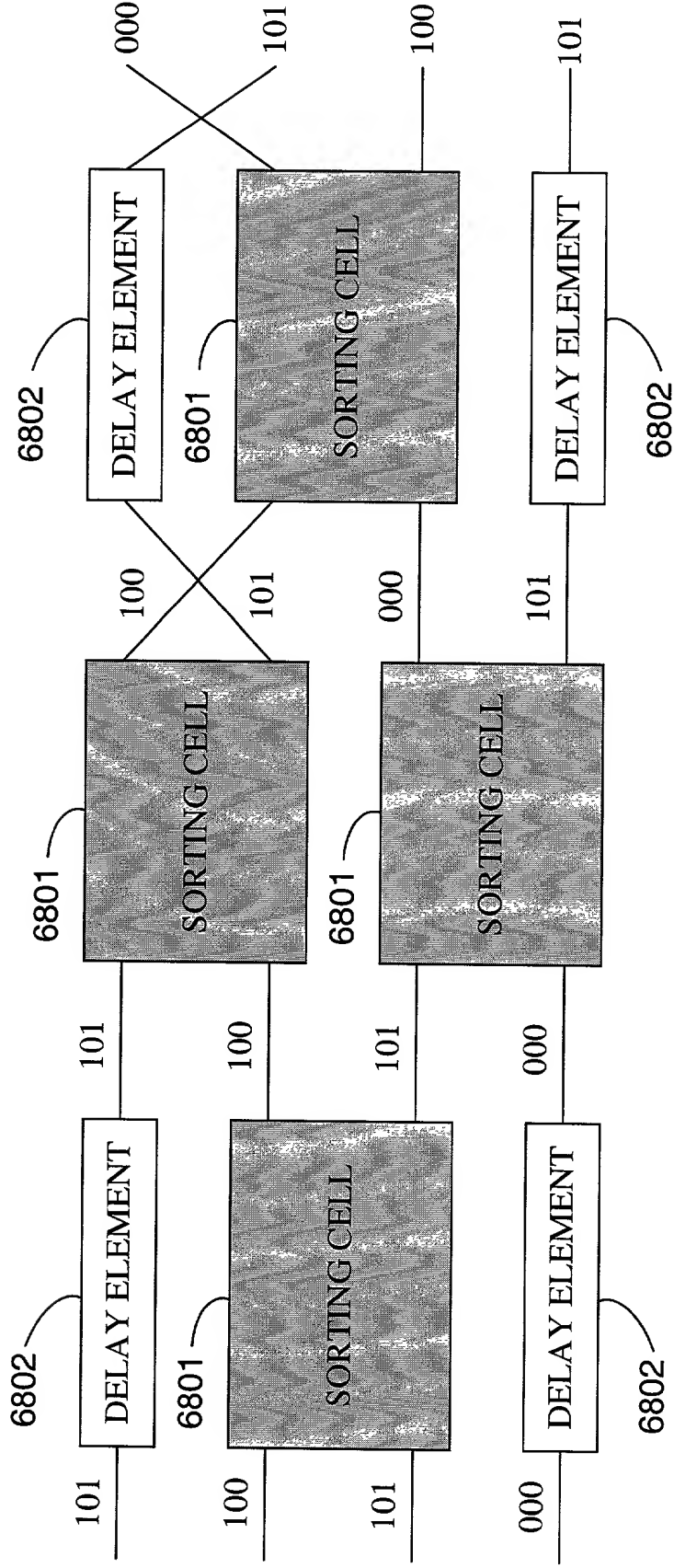
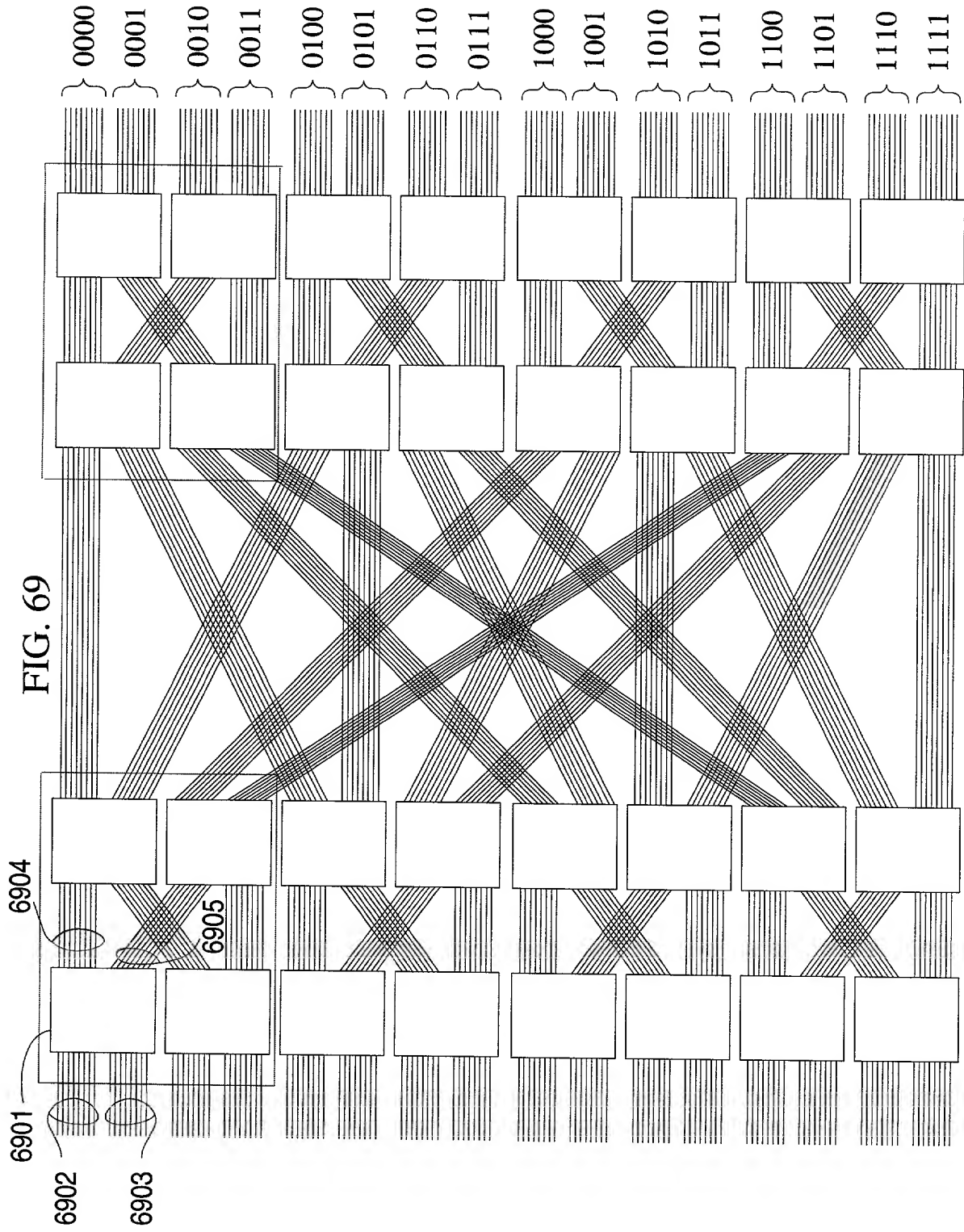


FIG. 68



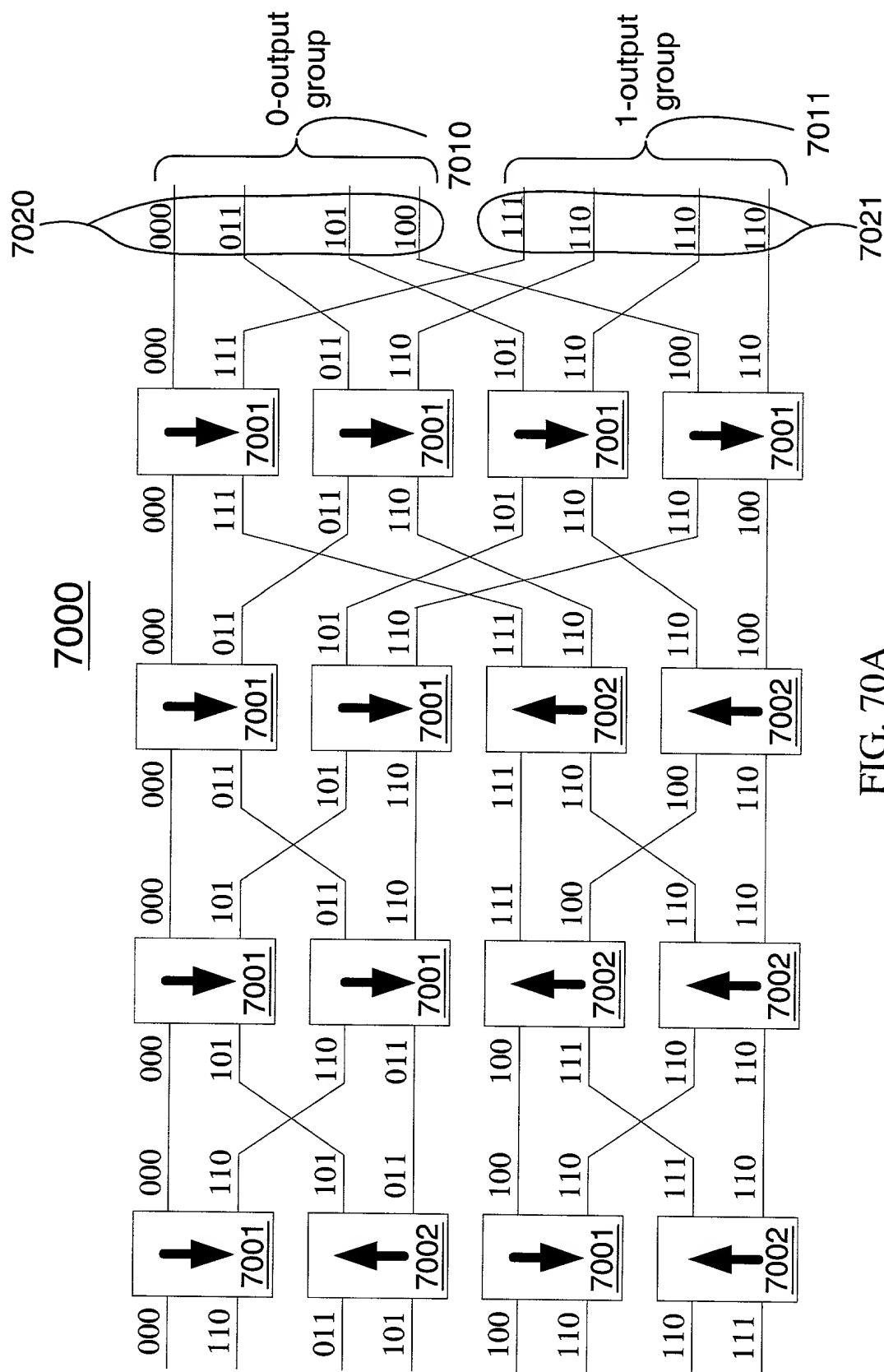


FIG. 70A

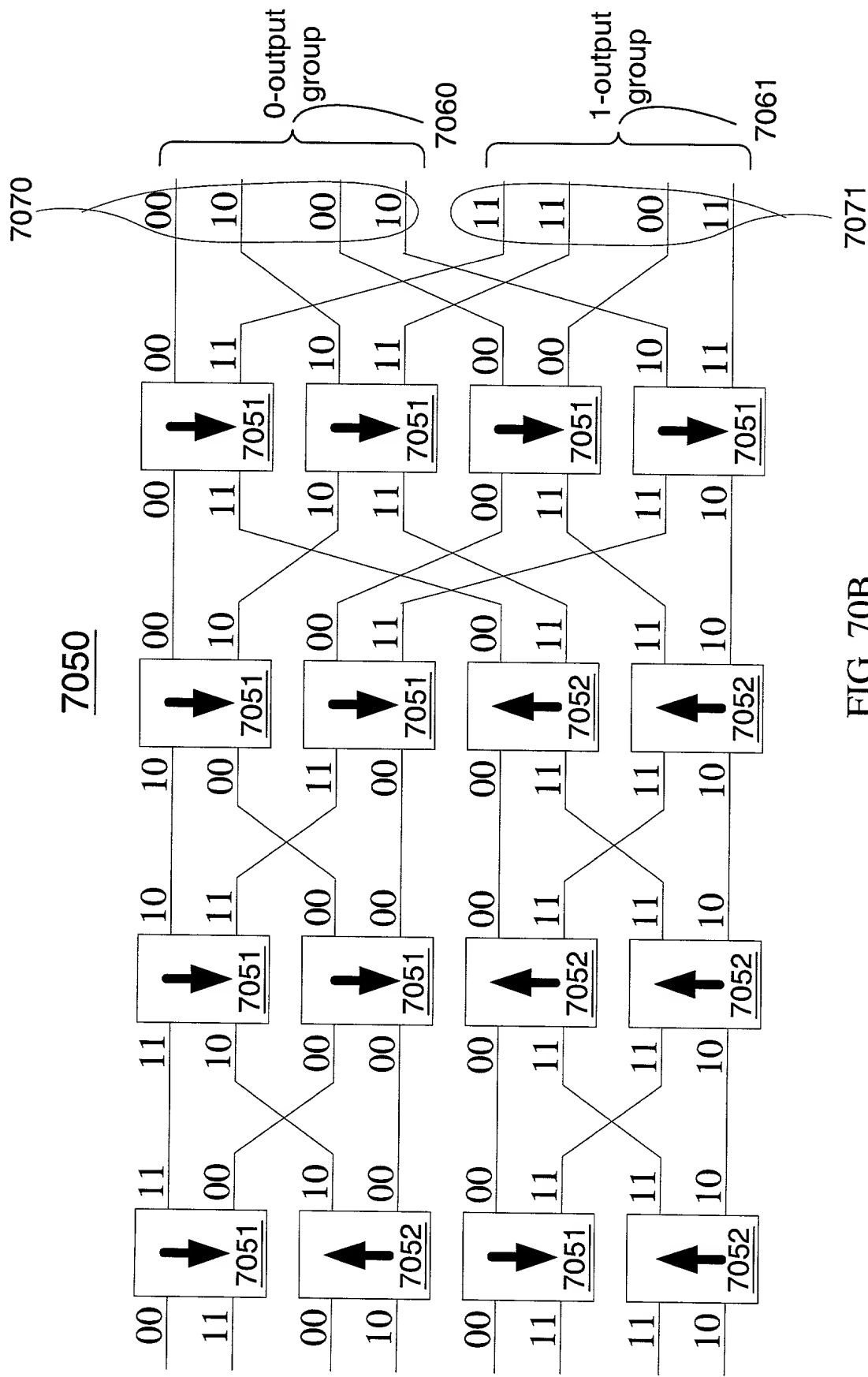


FIG. 70B

7100

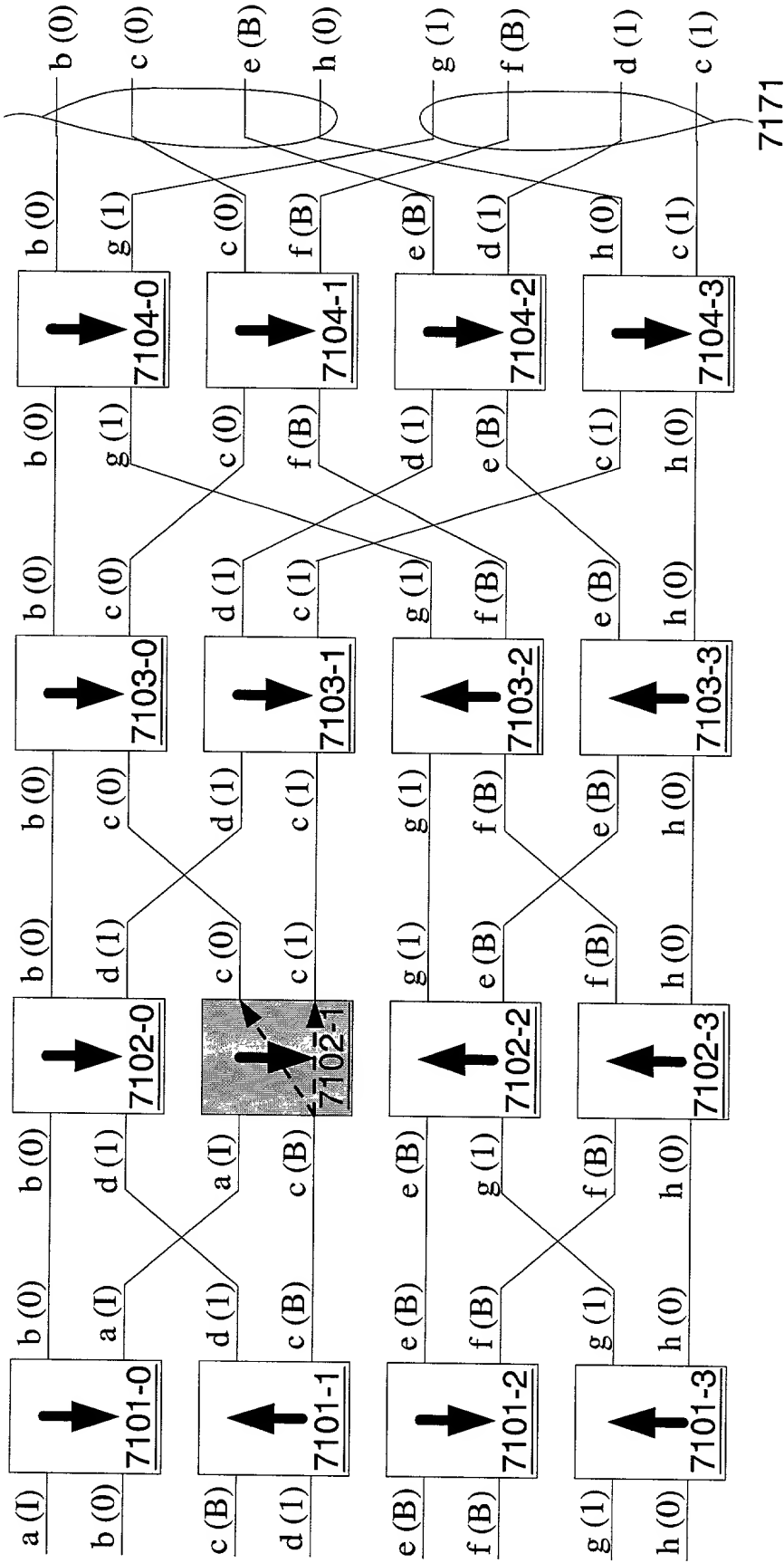


FIG. 71A

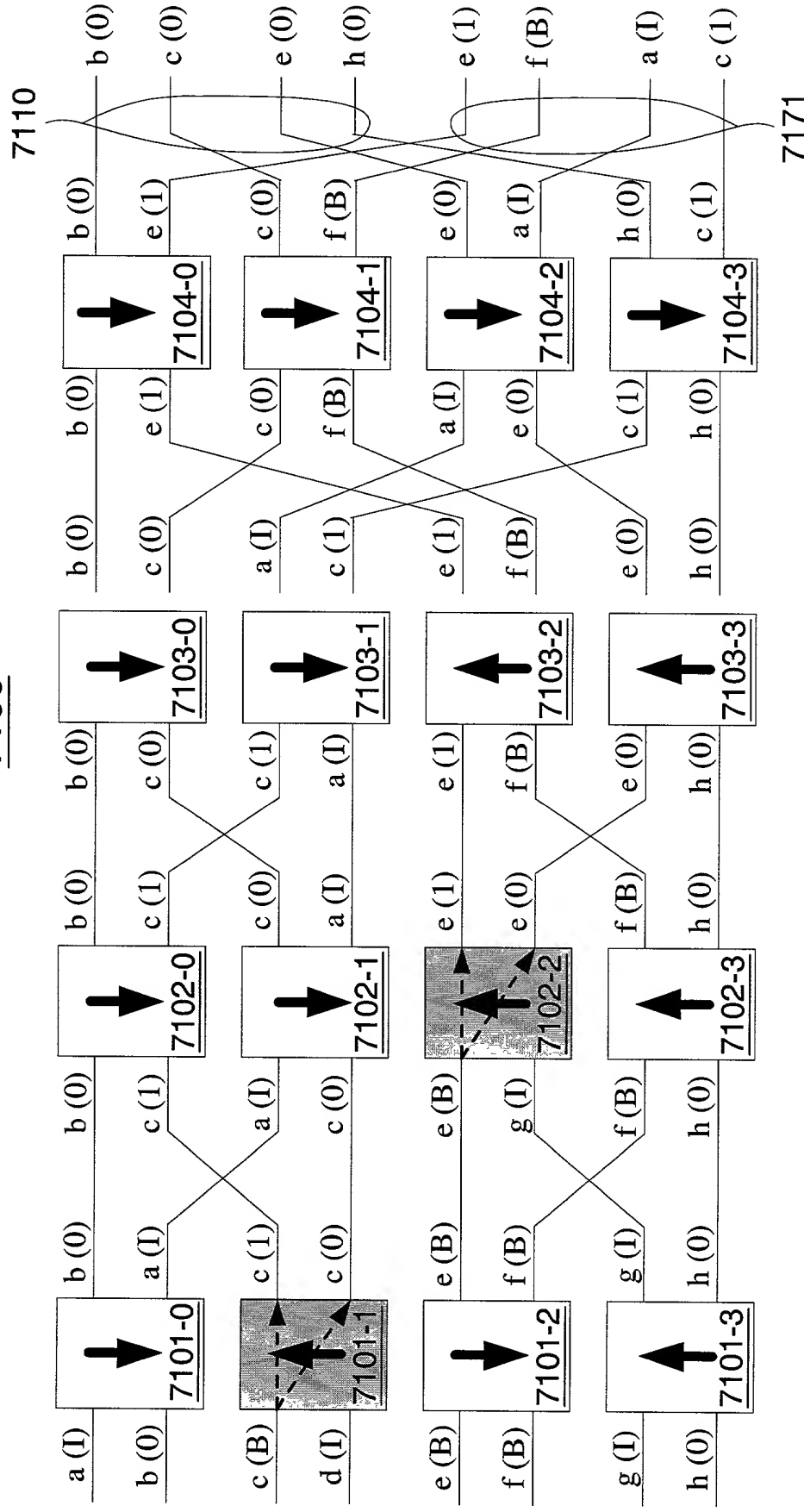
7100

FIG. 71B

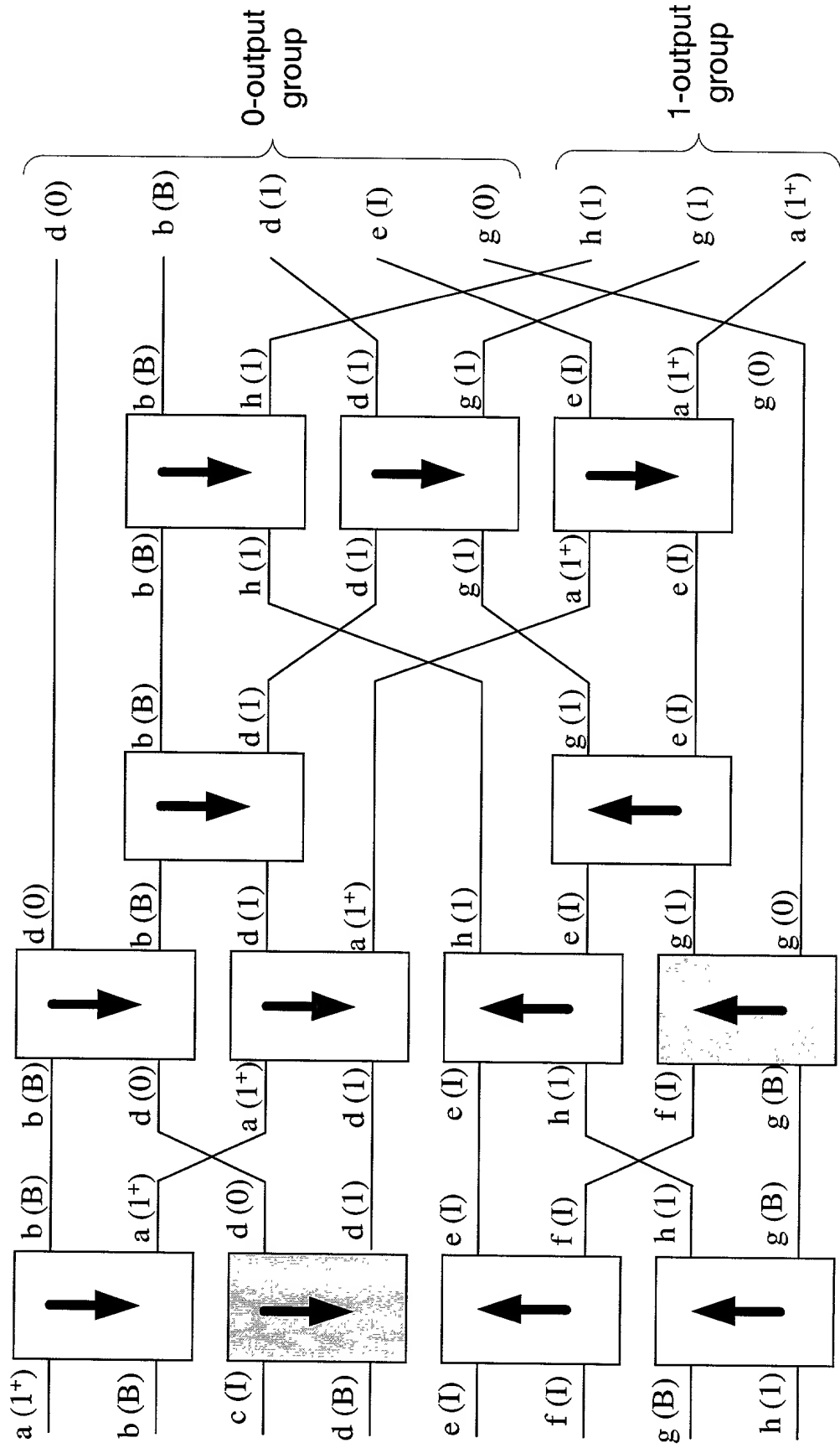


FIG. 72A

7200

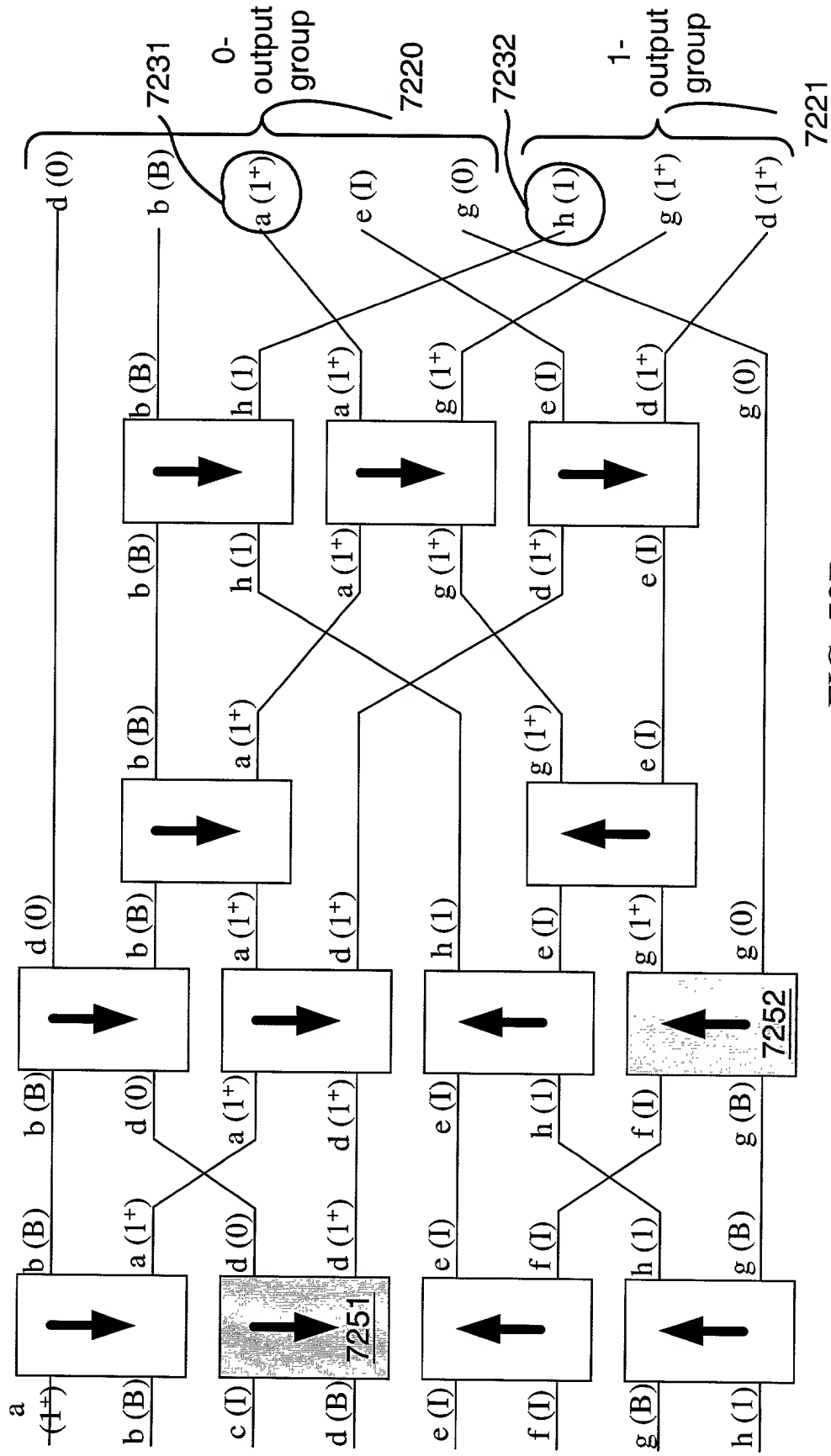


FIG. 72B

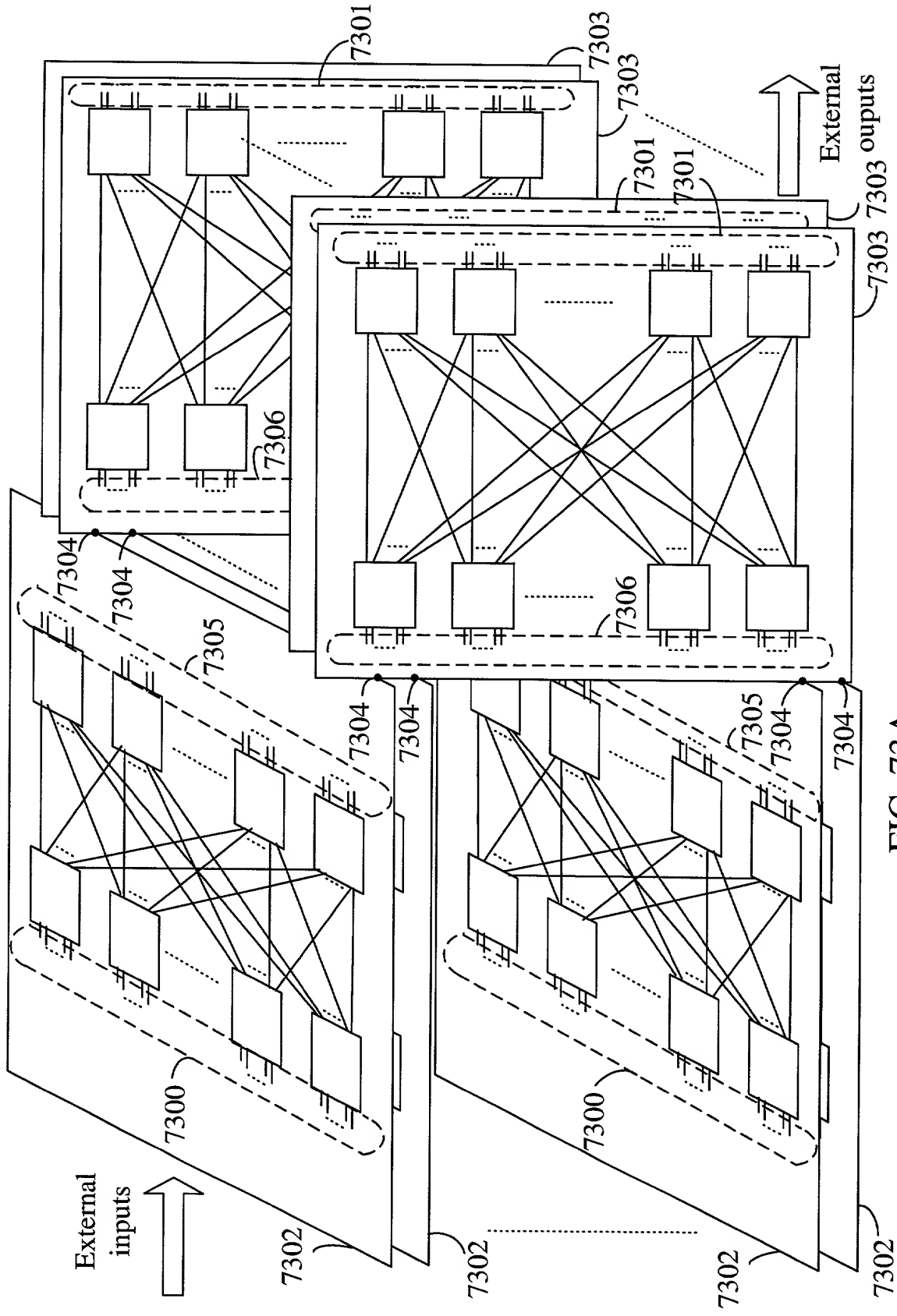
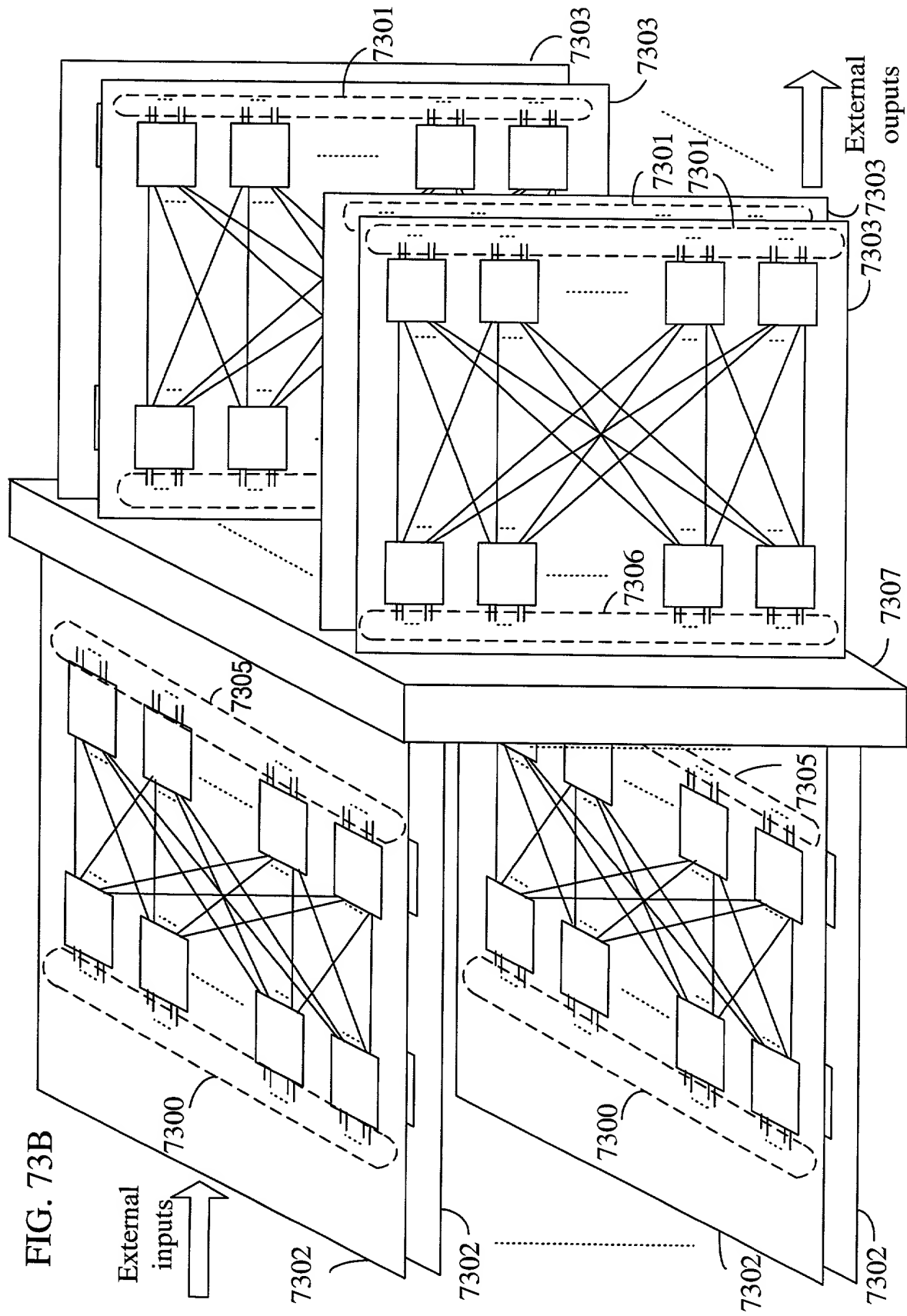


FIG. 73A



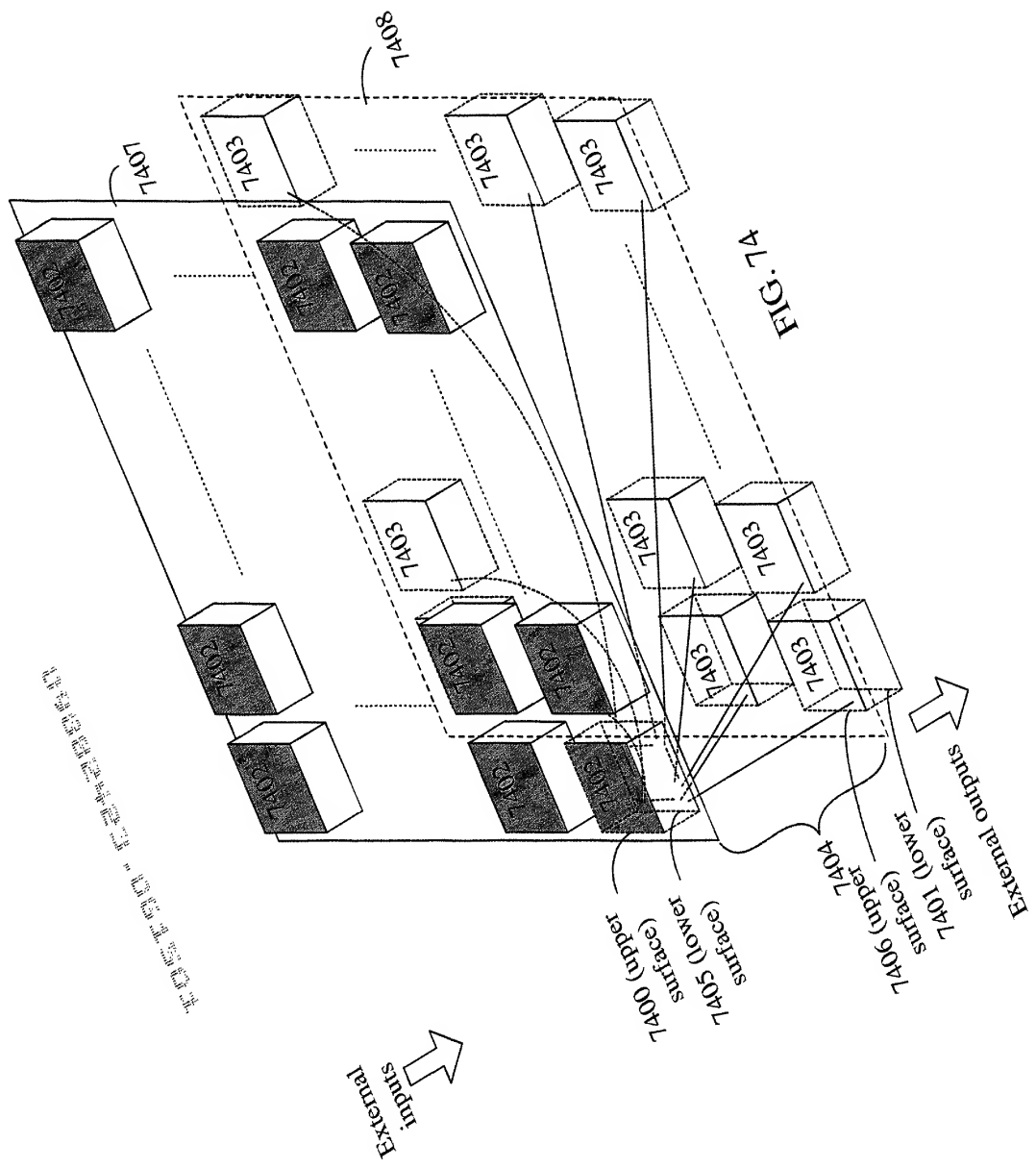
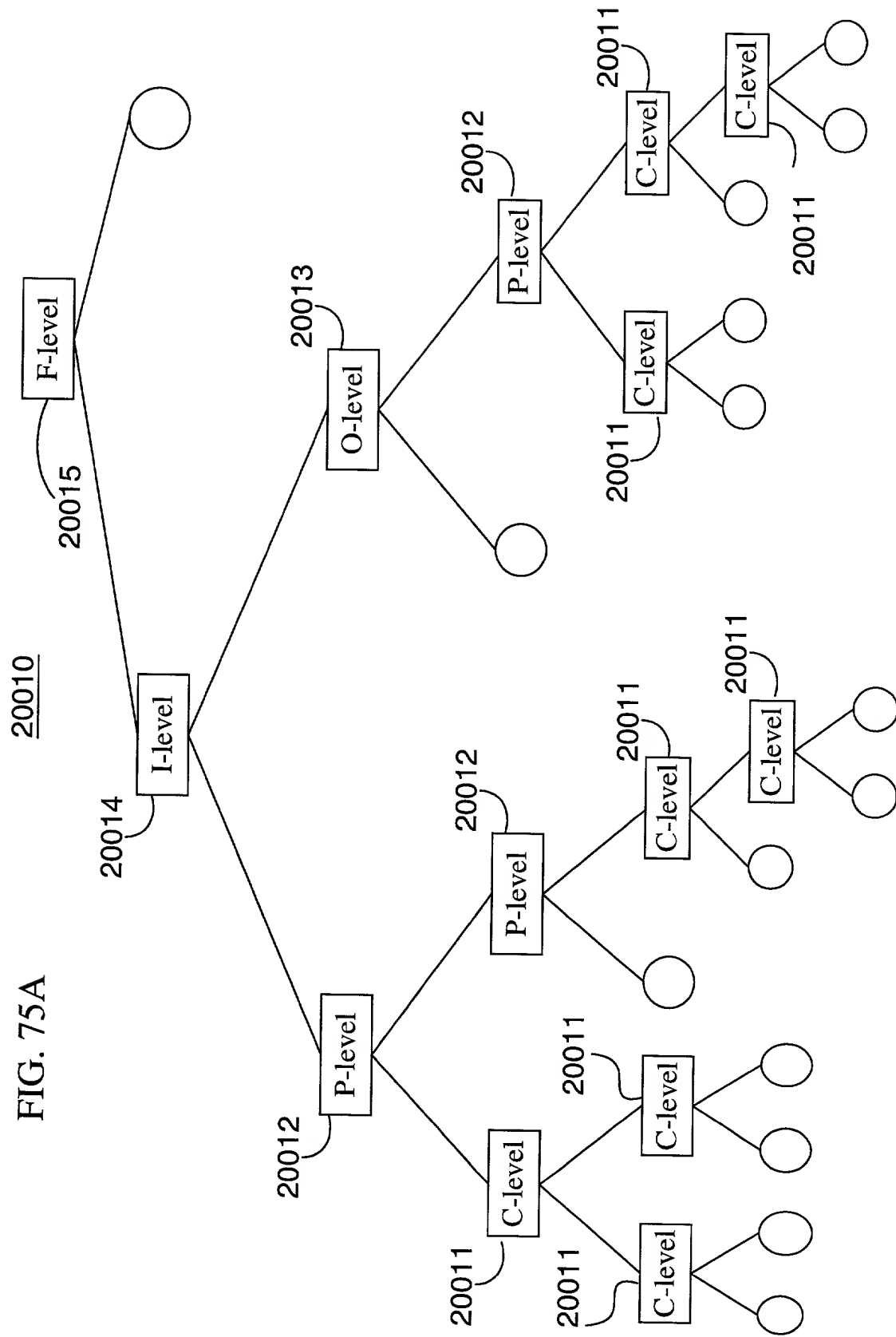


FIG. 7A

FIG. 75A



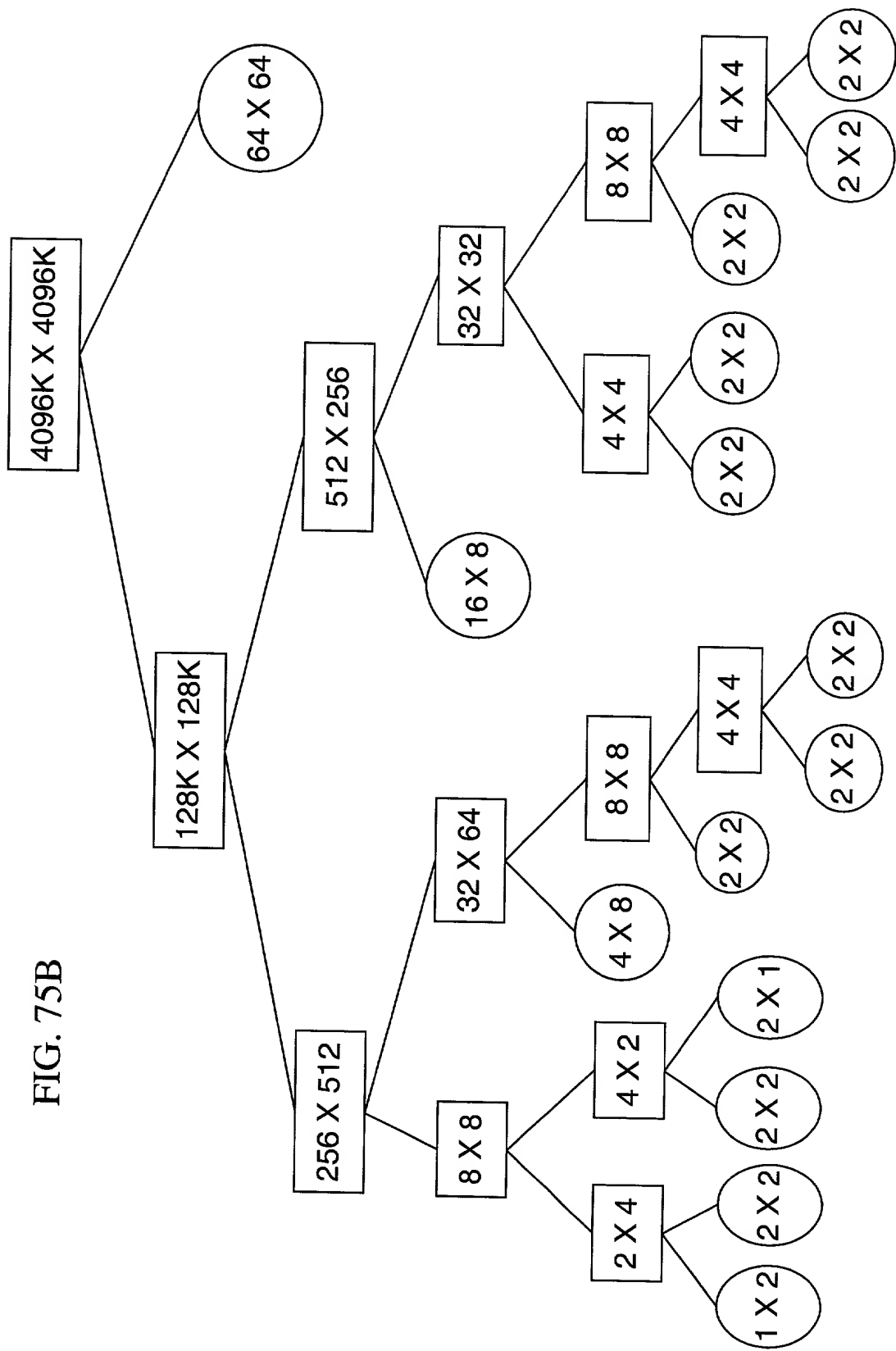


FIG. 75B

FIG. 75C

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